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# USSR Report

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## CIVIL AVIATION

### MINISTER BUGAYEV PROMISES IMPROVED AEROFLOT SERVICES

Moscow PRAVDA in Russian 21 May 83 p 3

[Article by B. Bugayev, minister of USSR Civil Aviation: "In the Passenger's Interests"]

[Text] The lead article entitled "The Passenger on the Journey" (PRAVDA, 18 February) found a businesslike response in civil aviation enterprises.

In 1983 it is planned to begin operating new types of aircraft on 60 air routes. On such routes as Moscow-Tashkent, Moscow-Rostov-on-Don, Moscow-Mineralnyye Vody, Moscow-Simferopol, Moscow-Novosibirsk and Tashkent-Mineralnyye Vody passenger transportation will be accomplished by the wide-body IL-86 liners.

The network of ticket booths is being developed in major urban residential areas. Supernumerary cashiers from among the workers of enterprises and establishments are being used to sell air tickets at those enterprises and establishments. Telephone orders for airline tickets and ticket home deliveries are being organized.

Steps for a further improvement in passenger services in light of resolutions of the November 1982 CPSU Central Committee Plenum were examined at an expanded session of the Ministry's collegium, where the lead article of PRAVDA entitled "The Passenger on the Journey" also was discussed. Enterprise heads pledged to revise service technology at airports and in agencies in the shortest possible time, focusing particular attention on an improvement to service to passengers with children, invalids and persons requiring an accelerated departure.

Closer cooperation and coordination in the work of all kinds of transportation will permit an improvement in the quality of passenger services. This is indicated by the experience of such coordination with enterprises of rail transportation of Moscow, Leningrad and the North Caucasus. The Ministry is drawing up proposals for the rational redistribution of passenger flows in areas with a developed ground transportation network, which will permit freeing fuel resources for fuller satisfaction of the needs for air shipments to remote parts of Siberia, the Far North and the Far East.

The heads of MGA [Ministry of Civil Aviation] and enterprises, and party and public organizations of the sector consider the basic direction of endeavor to be all possible reinforcement of order and efficiency and an increase in labor discipline, exactingness and strict accountability of aviation specialists for exemplary operation of air transportation in light of demands of the November 1982 CPSU Central Committee Plenum.

6904

CSO: 1829/310

## CIVIL AVIATION

### DEPUTY MINISTER SVECHNIKOV ON CIVIL AVIATION CONSTRUCTION PROJECTS

Moscow VOZDUSHNYY TRANSPORT in Russian 21 Apr 83 p 2

[Interview with Deputy Minister of Civil Aviation Leonid Stepanovich Svechnikov, by a VOZDUSHNYY TRANSPORT correspondent: "It Begins With the Ground Services"; date and place not given]

[Text] As already announced in our newspaper, a conference of civil aviation workers was held in Tbilisi on 31 March and 1 April of this year on capital construction and operation of airports, at which results of the work of ground services last year were summarized and tasks were set for the upcoming period. Our correspondent asked Deputy Minister of Civil Aviation L. Svechnikov to answer a number of questions connected with the construction and operation of airfield facilities.

[Question] Leonid Stepanovich, what are the basic directions in the construction of airports which have become apparent of late?

[Answer] The growth in passenger movements which rose constantly and swiftly over the last decades also predetermined the direction of capital construction in our airports. The last decade was most typical in this regard. It was during this period that the sector's ground services were saturated with qualitatively new equipment, air terminal complexes with higher throughput and improved comfort were erected, and runways were built or reconstructed for such aircraft as the Il-86, Il-76 and Tu-154. The ministry collegium's constant attention to matters of developing the "ground" also determined the main principle of activity of the ground services: "Build with quality, operate with skill."

[Question] What are the largest facilities that have appeared in our airports of late?

[Answer] Even a simple enumeration would take up too much space as the program for renewing the sector's "ground management" is being carried out so purposefully and consistently. An airport now is not simply a place where liners land and are serviced. A majority of the air harbors now being built or recently constructed truly are the city's "air gates," its calling card and its adornment. I will mention just Sheremetyevo-2, Zvartnots--the Yerevan

airport, Tashkent, the Tallinn port and Manas--the air berth of the high-mountain capital of Kirghizia. Pulkovo, Dnepropetrovsk and many others can be recalled. A characteristic feature here is the search for an original external appearance and the most advantageous and technologically simplest resolution of the passenger service problem.

Speaking of capital construction at tens on hundreds of our ports located in various oblasts, krays and republics, one must give due to the all-out, constant, friendly, interested help of local party and soviet entities. How can we help but recall here the words from the recently adopted CPSU Central Committee Decree "On the 80th Anniversary of the 2d RSDRP [Russian Social Democratic Labor Party] Congress": "Our people rightly link all their achievements with the many-sided activity of the CPSU, the guiding and directing force of Soviet society..."

In Yakutsk and Khabarovsk, in Nukus and Simferopol--everywhere the staffs and commissions of oblast party committees have kept the progress of construction under supervision, and everywhere experienced party leaders have been sent to our important sites, and supply, personnel and other problems have been resolved promptly.

[Question] No matter what kind of successes there are they always are the result of what was done yesterday. And what is to be built tomorrow and the day after tomorrow?

[Answer] Let's begin with today. At times one can read in various publications that our country is a solid construction site. It's true, and Aeroflot is no exception in this regard. Such a dynamic sector as ours cannot live without being directed to the future. The air terminal complexes at Minsk, Kazan and Karaganda should be singled out among the major sites now being built at our airports.

Ideas of ensuring flight safety, passenger service conditions and opportunities for re-equipping are contained in each of them above all inasmuch as construction sites being built today are aimed at the 21st century.

[Question] And so we have come to tomorrow.

[Answer] Tomorrow for our builders probably is embodied in the drawings being developed within the Aeroprojekt Institute and its branches. We already can see in general terms the make-up of such facilities as an airport and runway in the South Yakutsk settlement of Chulman, a city air terminal with hotel in Tbilisi, a holiday hotel and sanatorium in the Crimea, an air terminal complex in the new Krasnoyarsk port of Yemelyanovo, residences and children's establishments.

In beginning selection of the project, construction site, contractor and subcontractors we have in mind above all maximum comfort for passengers, convenience for servicing personnel, the capability of a building or facility to serve a long while reliably, its power consumption and metal consumption--in short, everything comprising the cost of a facility. Further, up until recently in drawing up a project and estimating its cost we (by the word "we"

here I mean the customers, planners and builders) had in mind only its initial cost. As experience showed the operation of a building such as, for example, air terminals in the ports of Tolmachevo or Borispol costs 3-4 times more in a 20-25 year period than its initial cost. What does it mean to replan or replace central heating pipes there? Workers of the ground facilities operation service know this best of all, and they correctly criticized the planners and builders at the Tbilisi conference for the fact that they still think little about what this building will be like to operate and how it will have to be repaired in 5, 10 or 25 years.

[Question] In short, construction has been placed on a flow line but repair is still done in the old way?

[Answer] That's it! Right now our planning organizations and builders have to think about the fact that the buildings being erected in our ports not only are beautiful, but also convenient to operate and technologically efficient to repair. For now it can be said that we are approaching our main airfield projects with such a criterion...

[Question] Are you speaking about runways?

[Answer] Yes, the runway, which is so inconspicuous outwardly (it can't be compared, of course, with the air terminal), is a very complicated engineering facility which, along with the flying craft, determines the level of aviation's development and--perhaps most important--the extent of the country's airfield development [aerofikatsiya]. This is why the Ministry of Civil Aviation Collegium is giving so much attention to the development of the ground management of airports of the North, Siberia and the Far East and why we are not sparing the expense to build runways, airfields and terminals throughout the country.

[Question] In preparing for our talk I extracted words from a report by CPSU Central Committee General Secretary Comrade Yu. V. Andropov entitled "Sixty Years of the USSR": "Without well operating transport it is very difficult to support both the accelerated development of all republics and a further deepening of their economic cooperation. . . . In providing daily human contacts at the level of the entire Soviet Union and living ties among all republics and rayons of the country, transport serves to give people access to the achievements of socialist civilization in the broadest sense of the word."

[Answer] That is a high evaluation of which every aviator is proud, but it is also a program of action for us. How selflessly and purposefully aviation builders have to work to justify this evaluation! We have the experience; it only has to be generalized and disseminated everywhere. With respect to examples, it is worthwhile recalling the construction of a VPP [runway] at Yakutsk. How difficult a construction site that was! On permafrost, under conditions of a very fierce winter, overcoming difficulties of terrain relief (it was necessary to fill in the channel of a stream and send it along a new course), and under conditions of restricted limits. The oblast party committee, the customer--a civil aviation directorate, and the contractor--SU [Construction Administration]-888 worked in concert and with understanding of the job's importance and now the runway at Yakutsk is capable of receiving any type of craft.

[Question] The central year of the five-year plan has come into its own. The upcoming summer season poses serious problems for builders and operators...

[Answer] Yes, how the five-year plan as a whole will be fulfilled depends largely on how 1983 plans will be fulfilled.

The first and foremost task set for us by the MGA collegium and which was comprehensively revealed at the Tbilisi conference in reports by UKS [Capital Construction Administration] chief A. Morozov and UNS [administration of chief of supply] chief V. Sokolov and in speeches is the quality performance of construction and repair work with observance of the timetable, the turnover on time of projects being placed in operation, and creation of a reserve for plan fulfillment in 1984. This year we are faced with serious work of building projects at airports in Minsk, Omsk, Khabarovsk, Simferopol, Sukhumi and others, in the Ulyanovsk center for training civil aviation specialists for CEMA countries, and at plants No 404 in Sverdlovsk and No 402 in Bykovo; and construction of residences and social and cultural services projects in aviation garrisons at the airports of Domodedovo, Simferopol, Koltsovo, Yerevan and others.

Collectives of the construction-installation administrations of the Aviastroy PSMO [expansion unknown, possibly construction-installation production association] are faced with very serious and responsible tasks. We now are setting for ourselves the task of taking on our shoulders as much as possible of those problems of construction and capital repair of the fund we planned to have and that we have. Those millions of rubles allocated to the sector for capital construction, repair and operation must be used and used sensibly, thriftily and wisely. This meets those requirements I mentioned at the beginning of the talk: "Build with quality and operate with skill and thrift."

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## CIVIL AVIATION

### 'START' AUTOMATED TRAFFIC CONTROL SYSTEM OPERATIONAL AT KRASNODAR

Moscow VOZDUSHNYY TRANSPORT in Russian 5 May 83 p 1

[Article by VOZDUSHNYY TRANSPORT special correspondent S. Omel'chenko, Krasnodar: "Report from the Worksite: A Start for 'Start'"]

[Text] Conversion to air traffic control using the automated "Start" system in the Krasnodar airport was set for 1400 hours, but as early as 1130 flight controller V. Mel'nikov's shift, a collective which had attained best results in socialist competition and for this given the high honor of being first to begin operating the new equipment, came on duty after a medical inspection and briefing.

The work stations are comfortable. The AS UVD [automated air traffic control system] was accommodated in a building just constructed. The spacious room was full of air and light.

The controllers are still getting used to the situation, as they say. There are portable plan position indicators from the radar next to the new consoles. Although all specialists underwent a sequence of necessary theoretical and practical training for working on the AS UVD, the previous customary equipment is connected in parallel with the new equipment to give them greater confidence in their own abilities and as an additional reserve.

Placing the next AS UVD in operation is an event of great importance not only for the aviation enterprise, but for all civil aviation. The "Start" improved the reliability and economy of flights and made the controller's job easier. It supports the approach and landing of airships and traffic control by means of automatic equipment up to an altitude of 6 km. Labor-intensive processes such as the collection and processing of data on airships in the control zone also have been automated. There is no need for the controller to keep a chart or hold a mass of information in his memory. Electronic computer equipment issues all necessary information directly to the work station.

A Tu-134 with the side number 65766 is first to enter the zone of the "East" approach control point. It is proceeding to Rostov at an altitude of 6,000 m. Controller Petr Bakunets comes up in communications with the crew. Radio traffic is reduced to a minimum, and this is one of the indisputable merits of the new system. Aircraft are equipped with automatic transponders which give "Start" all information on the aircraft. Data processed by the EVM

[electronic computer] move across the screen in the form of columns of figures, the so-called tracking log, behind the marks denoting an aircraft. The airwaves have become freer and UVD [air traffic control] specialists have had more time to estimate the situation and for immediate air traffic control. Soon there already are several marks on the screen, some of them nonstandard and without a log. "Take a look," whispers S. Avakov, a representative of NETs AUVD [expansion unknown], "this is an image of a flock of birds. In this case they are to one side of the routes, but should the danger of a collision with birds arise the controller will warn the crew in advance, for example he will change the altitude to avoid an undesirable encounter."

V. Al'minskas, controller of the approach point's western sector; K. Durnov, landing point controller; and Yu. Glazunov, traffic circuit controller, are absorbed in work. Flight controller V. Mel'nikov is at the start alongside N. Chernikov.

The introduction and mastery of new AS UVD means is no simple matter. The entire structure of the air space and the principles and methods of UVD had to be revised, but young people easily assimilate everything new and foremost. Petr Bakunets, a Komsomol member and shift trade union organizer, notes the merits of "Start" with enthusiasm. They include the most economical UVD methods such as the possibility for climbing and descending continuously and a reduction in the time airships spend in the zone. I recalled a story told by L. Popov, the present deputy commander of the aviation enterprise, about the difficulty which they, at that time Komsomol members, had at one time persuading the controllers to use direction finders, then a technical innovation. It was not only the equipment, but also the specialists' psychology which had to be readjusted. The traffic service grew, was re-equipped, and the range of tasks broadened, but even today the key element in the complicated UVD chain is man. His knowledge, proficiency and experience decide everything and the most sophisticated means are incapable of replacing his ability to make decisions. They merely make his work easier.

At this time of year air traffic intensity is relatively low but in just a few weeks the flow of aircraft will grow considerably. On the threshold of the summer passenger season UVD specialists are troubled by certain problems which are not yet resolved. The chief trouble is a shortage of automatic transponders on the Yak-40 aircraft and their total absence for the L-410. For now they solved this problem in a simple way by forbidding "alien" Yak-40's not equipped with the transponders from entering the zone. But what should be done with their own Yak-40's? This incomplete work or, if you like, omission, largely reduces the merits of the automatic equipment to naught and complicates the work of traffic controllers. Resolution of the matter brooks no postponement. It is also important to regulate the time for turning on automatic transponders, in contact with the flight service. Premature activation also causes premature appearance of the log, encumbering the screen. These problems are causing natural concern for the controllers, whose contribution to the sector's work is the assurance of flight safety.

## CIVIL AVIATION

### IMPROVED AIR SHIPMENT OF FRUIT REPORTED THIS YEAR

Moscow VOZDUSHNYY TRANSPORT in Russian 2 Jul 83 p 2

[Article by P. Protsenko, senior airport traffic dispatcher: "There Should Be No Dead-Ends on the 'Fruit Route'"]

[Text] Zaporozh'ye--"We have no complaints about the aviators," said I. Taryanik, agronomist at the "Sadovoye" sovkhoz in Melitopol'skiy Rayon, before the departure of the next flight with succulent cherries bound for Leningrad.

This year the fruit conveyer that delivers the sweet products from the orchards of the southern Ukraine to the inhabitants of Moscow, Leningrad and Arkhangel'sk is operating smoothly. Precisely in accordance with the plan the AN-12 and AN-26 crews from the Leningrad and Dnepropetrovsk administrations have already delivered hundreds of tons of early cherries for their plates.

Ye. Stepanov, an AN-12 captain from Leningrad says: "It is pleasing to note that this year there has been more order on the fruit route from the orchard to the consumer via the airport. I am particularly pleased with the organization of work in Kherson and Zaporozh'ye. There are no interruptions and the working situation is calm; you can set your watch by the schedule."

I asked V. Gostishchev, first deputy commander of the Zaporozh'ye aviation enterprise, to share his experience in achieving these successes.

"This year, when we reached instructions from the Ukrainian Administration of Civil Aviation on the shipment of the fruit and vegetable harvests, we immediately set up an operational group and pointed out everyone's duties in detail. The points of essential control in the technological cycle were precisely determined and close links set up with the production dispatcher service at the enterprise. A constant flow of information passes from the airport elements to the crew, the orchard and the airport and from the airport to the freight-loading administration. And when the time comes, the conveyer operates like clockwork."

A. Pestov, chief of the freight services organization, has taken into his own hands the problems of comprehensive interaction between the service and the farms dispatching the fruit. N. Terzi, chief of the enterprise production dispatcher service, has assumed responsibility for the second element of the

conveyer--the air bridge. He deals with the timely calling of crews and insuring their reception and dispatch, and the coordination of other questions connected with trouble-free transfer flights. Deputy Airport Chief N. Miloslavskiy has taken on the work of "the rear," providing support for the air bridge.

Thanks to these common efforts, in the first 2 weeks of June 68 tons of first-class cherries were dispatched to Moscow and 120 tons to Leningrad.

When I showed interest in how this looks compared with the plan, A. Pestov replied hesitantly: "The plan is for 100 tons to each city...."

His hesitance is easy to understand. The fact is that each administration assesses these figures in its own way. When this figure is mentioned, the Ministry of Civil Aviation sees the total weight of freight shipped by the aircraft, that is, the cherries plus packaging. In this case the Leningrad plan is covered 20 percent. But when informed of these same figures by the fruit supplier, the Ministry of the Fruit and Vegetable Industry, which also draws up the schedule for the required number of aircraft, looks at net weight of the fruit. And it turns out that in order to fulfill the plan 100 percent, the Zaporozh'ye aviators must send at least one extra AN-12, since for each 12 tons of total freight about 2.5 tons is packaging.

The same figures should have a common and specific interpretation. This is not yet the case. Therefore the freight carriers are uncertain about how to assess the course of plan fulfillment.

...As Ye. Stepanov's crew was climbing the ladder into the cargo liner, the plane's navigator M. Krivorotov added: "Unpleasant bottlenecks are still encountered on the 'green street' of the fruit flights. One of them is Arkhangel'sk airport. They do not unload the aircraft in good time there; they do not refuel, and the crew is not accommodated without delays. In response to our complaints they say: 'Perhaps you should not fly here!' But we have a big plan for shipping fruit and vegetables right there to Arkhangel'sk. And this kind of attitude undoubtedly hampers the common cause."

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CSO: 1829/278

## CIVIL AVIATION

### UPGRADED YAKUTSK AIRPORT OPENS TO IL-62 SERVICE

Moscow VOZDUSHNYY TRANSPORT in Russian 2 Jul 83 p 1

[Correspondent O. Borodin report: "Moscow-Yakutsk in Six Hours"]

[Text] Yakutsk--A new page has been opened in the history of air transport development at Yakutsk. At 1400 hours local time on 25 June an Il-62 landed on the new runway at Yakutsk airport. The first nonstop flight on the Moscow-Yakutsk route had been completed. The new runway, capable of taking aircraft of all types, had become operational.

The foundation for this event was laid in 1978 when the bulldozer blade broke ground in the waste land adjacent to the existing runway at Yakutsk airport and construction was started on another mighty airport complex in the northeast of the country. In the years that have elapsed since then the No 888 "Mirnydorstroy" trust has moved about 2 million cubic meters of earth and laid about 150,000 cubic meters of concrete during the construction of its projects, while the Aviastroy construction and assembly administration No 16 has constructed dozens of buildings used for airport services. Brigades from the Aviaspetsmontazhnaladka administration have completed a large volume of work.

...The Il-62 touches down lightly on the concrete of the new runway, its landing run using less than two-thirds of the runway length. As if testing the hardness of the concrete it rolls to its southern end and turning on its nose-wheel, comes to a standstill. Specialists from the aviation technical services surround the aircraft and the airport towing vehicle approaches.

The crew of the first Il-62 on Yakutsk soil walks down the ramp: the aircraft captain V. Kargin, co-pilot V. Chernobyl', flight engineer V. Yazykov, navigator V. Loginov, radio operator N. Stolyarov, and the checkout official, Yu. Makarov, a commander from the Domodedovo aviation enterprise subdivision. The pioneers are presented with flowers and commemorative gifts. The first interview is on the ramp; Yu. Makarov gets the first question. How does he assess the new runway?

"The quality of the runway pavement is excellent. I thank the people of Yakutsk for this new airport complex."

The Il-62 flight is a technical flight. But the first passengers are nevertheless on board. Administration chief I. Dergilev has returned from a business trip on the first Il-62 flight. He is asked a question, as a passenger.

"It is more comfortable and more convenient than the Tu-154." Ivan Semenovitch shares his impressions. "But the main thing is that instead of 10 hours the flight from Moscow takes only 6 hours."

In the evening of the same day the chairman of the ministry commission, Chief of the USSR Ministry of Civil Aviation Flight Service Administration A. Mayorov, who had arrived on the Il-62, signed the official papers for the opening of Yakutsk airport for the Il-62.

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## CIVIL AVIATION

### UZBEK SSR CITY OF SHAKHRISABZ OPENS NEW AIRPORT; TOURISM PLANNED

Moscow VOZDUSHNYY TRANSPORT in Russian 5 Jul 83 p 1

[Correspondent Sh. Zaynutdinov report: "Aeroflot in the Foothills of Gissar"]

[Text] A new airport has appeared on the map of Uzbekistan. Its ceremonial opening took place a few days ago in the city of Shakhrisabz to which the first Yak-40 had flown from Tashkent.

Shakhrisabz is one of the most ancient of the Asiatic cities recently to be included in the "Inturist" list of routes and the listing of the AUCCTU Central Council on Tourism and Excursions. At one time one of the branches of the Great Silk Route passed through here. Shakhrisabz is known as one of the East's treasure houses of medieval architecture. It is also renowned for its cotton, silk, canned goods and applied folk art items.

Each year thousands of guests come here from different parts of the country and abroad to look at the unique monuments of antiquity, learn of the ancient history of the area and visit Mount Maydanak, where the observatory of the Uzbek Academy of Sciences Astronomical Institute is located, and the Kitab latitude station, one of five in the world and the only one in the USSR.

It was with a consideration of all this that it was decided to construct an airport here. Construction was entrusted to the Karshi aviation enterprise. The main construction and assembly work was done by collectives of the subdivisions of the No 19 trust belonging to the Uzbek SSR Ministry of Rural Construction. The Shakhrisabz airport buildings are designed to handle 100 passengers an hour. Funds for construction of the new airport in the Gissar foothills were allocated from the local budget. Construction was designated shock construction. Not only workers from Shakhrisabzskiy Rayon but also from Kitabskiy, Kamashinskiy and other rayons worked on it.

The commissioning of the new airport makes it possible to satisfy more fully demand for air transportation not only for tourists but also for the population of Kashka-Dar'ya Oblast living in the Gissar foothills. It will be possible to unload some of the ever increasing numbers of passengers in Karshi, where a modern airport terminal is now under construction.

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## MOTOR VEHICLES AND HIGHWAYS

### TESTING OF NEW 180-TON CAPACITY BELAZ DUMP TRUCK NEARS COMPLETION

Moscow IZVESTIYA in Russian 3 Jun 83 p 1

[Article by A. Blokhin, IZVESTIYA special correspondent, city of Zhodino, Belorussian SSR: "A Giant Gathers Speed"]

[Text] Production tests of a 180-ton capacity dump truck before its dispatch to the coal miners of Neryungri and Yakutiya are ending in the Belorusskiy Motor Vehicle Plant.

Over the years I have had occasion to be behind the wheel of many automobiles and trucks. Now I am faced with becoming familiar with a motor vehicle giant.

Test driver Nikolay Nebyshinets gives a short pretrip briefing and gives up his place in the cab. A powerful diesel engine rumbles smoothly somewhere below in the bowels of the machine. On the instrument panel with dozens of different dials there is an unassuming, almost homey, electrical switch: Flick it up--"forward," down--"reverse," in the middle--"neutral." There is no gear shift lever, and there is not the clutch pedal to which every driver is accustomed.

As if giving the signal to depart, Nikolay presses a black lever near the wheel, and a shrill diesel whistling sounds above the plant's track. I place my foot on the "gas." A total of 2,300 horsepower immediately answers with a mighty roar. The motor vehicle ship smoothly moves from its position and moves majestically forward responding easily to the wheel....

I ask my tutor: "What happens if it is necessary to change a wheel?"

"Without a special wheel remover machine there is nothing to be done. The 'height' of each tire is 3.5 meters, and its weight is more than 3 tons. The width of one low pressure tire is 1.1 meters. The dump truck weight without a load is 145 tons. An electric traction motor, which receives its power from the alternating current generator, is mounted in each wheel."

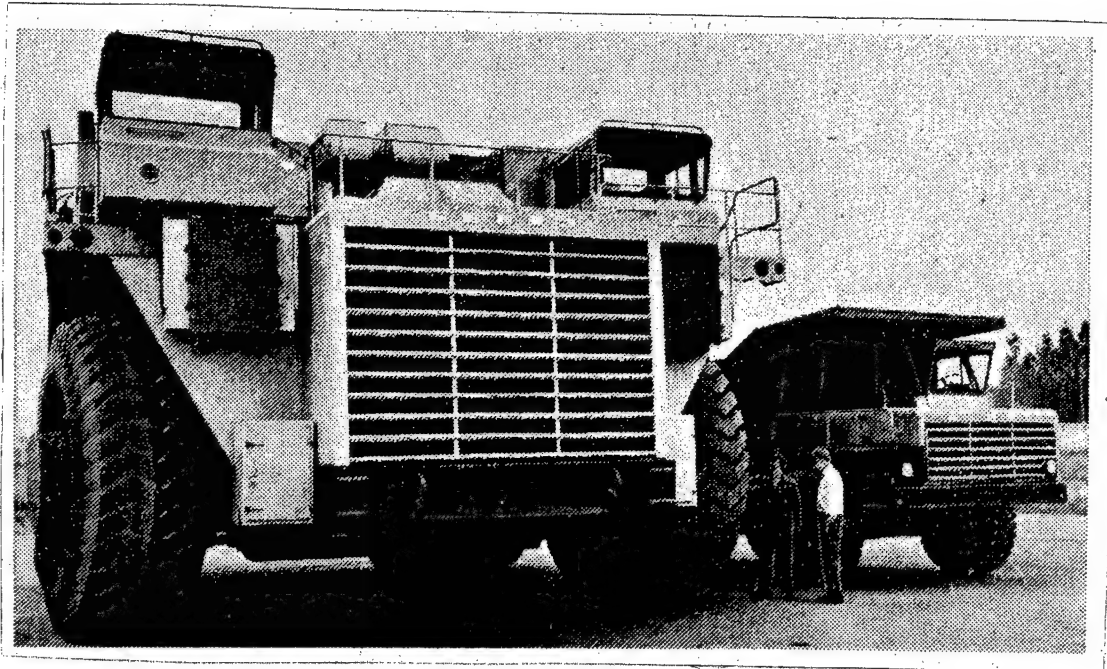
The 180-ton BelAZ is not simply the largest vehicle in the country. The creation of a machine of this class required the solution of qualitatively

new technical tasks, E. Ivanov, the plant's chief designer, pointed out in his account. The new BelAZ needs receptacles and crushers of the appropriate "height" at the mining enterprises, more powerful excavating machines are required to load it, and the entire open pit mine must be designed considering its dimensions.

Special buildings, where unusual devices will appear on the assembly jigs, are being constructed for the production of 180-ton dump trucks in the BelAZ; and helmets will have to be worn by the assemblers themselves: even a harmless nut, which has fallen from a height of 6.5 meters (the height of the BelAZ), can cause harm.

D. Syrokvash, the BelAZ director, says: "The business cooperation of our plant with other enterprises of the branch has become closer. The Gor'kiy, Kama and Ul'yanov Motor Vehicle Plants and VAZ-- all told 22 enterprises -- are helping the Belorussian automobile builders to increase their output of dump trucks for the miners. The search for internal reserves has also become more persistent: The design of the machine is being improved, and labor at the work positions is being organized more rationally. The purposeful work to improve living conditions in the plant has provided a great deal".

The designers of the BelAZ are working on feasibility studies for a two-axle dump truck with a capacity of 230 tons. It is interesting that the tires are the main obstacle to increasing the capacity further. Its weight exceeds five tons and its dimensions fall outside the maximum railroad clearances. One of the engineers answered my question jokingly: "Perhaps, we could make a collapsible tire? Today, that is equivalent to the ability to remove one's socks without removing one's boots".



The 180-ton BelAZ next to its predecessor -- the 27-ton open-pit dump truck

Ten steep steps of a metal ladder lead to the upper deck of the vehicle. Involuntarily, this comparison evokes not only the unusual width of the vehicle -- about eight meters! -- but also the typically steamship barrier of its sides.

For the present, the new giant vehicle is tomorrow's work for the motor vehicle plant. Today, the production of heavy open-pit dump trucks is taking place on two existing conveyors. The assembly of 27-40-ton vehicles is taking place on the first, and of 75-110-ton ones on the second. A production of 110-ton dump trucks 2.5-fold larger than in the preceding year is coming in the third year of the five-year plan. The output of 75-ton BelAZ trucks will increase.

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## RAIL SYSTEMS

### KONAREV UNDERSCORES NEED FOR IMMEDIATE IMPROVEMENT IN RAILWAYS WORK

Moscow GUDOK in Russian 9 Jun 83 p 3

[Article by Ye. Khrakovskiy: "A Key Sector of the Economic System--Press Conference of Minister of Railways N. S. Konarev"; phrase rendered in all capital letters printed in boldface in source]

[Text] Yesterday at the Ministry of Railways a meeting organized at the request of journalists was held between Minister of Railways N. S. Konarev and colleagues of the central and Moscow newspapers, radio and television. The minister told the journalists of the tasks posed before workers of the 'steel main lines' by the November (1982) Plenum of the Party Central Committee and in the speeches of General Secretary of the CPSU Central Committee Yu. V. Andropov relating how these problems are being resolved practically. The attention of those who had gathered was directed toward the main tendencies in the development and improvement of rail transport work, one of the key sectors of our economic system.

Rail transport today is a network of main lines and lines extending more than 143,000 kilometers which crisscross our entire country from west to east and from north to south. This network is subdivided into 32 railroads and 185 divisions. There are 11,200 stations and sidings, 670 locomotive and 415 rail car depots, and thousands of track sections, power supply sectors and other enterprises. It is serviced by more than 100 plants from the transport industry which repair the machinery and produce spare parts and specialized equipment.

The backbone of this network are the electrified main lines, which extend almost 46,000 kilometers. They have no equal in the world for length, volume of traffic carried or economy.

The scales of transport and the intensity of traffic on Soviet railroads amaze, literally stagger the minds of foreign specialists. We are accustomed to the fact that on our network of steel main lines, the total length of which makes up about 11 percent of the world total, 53 percent of the freight turnover and about one-fourth of the passenger flow of all of the world's railroads are carried. Freight traffic intensity in the USSR is 5-6 times greater than that in the USA, rail cars are used 3 times more productively than in that greatest capitalist country, locomotives are used 1.5 times

more productively and sorting yards 3-4 times more productively. Of course, it was not easy to achieve such indicators.

All this is evidence of the scale and the tremendous work intensity of Soviet railroads, unheard of in world practice. But the development of an economic system and the growth of the well-being of a people require more. The reserves and the capacities should be used in every way possible so that the rapidly growing freight and passenger turnover may be successfully mastered and so that the transport requirements of the national economy and the populace may be satisfied in a timely fashion, completely, with minimum expenditures.

The remarkable transport cadres put these reserves into operation, and they are justifiably proud of their revolutionary, fighting and labor traditions. A large army of production innovators, the right flank members of the All-Union Socialist Competition, the continuers of the Great Initiative, participants in a mighty movement of modernity for a communist attitude toward labor, are working on the steel main line.

Rail transport has at its disposal a solid scientific potential, a fine base for training qualified cadres, there are four scientific-research institutes, 15 VUZes and 88 vocational schools within its system, and dozens of technical academies and schools work for it. A strong scientific and technical base has been created. It is important to use this potential wisely, efficiently, with the greatest effect.

N. S. Konarev told of the development of a comprehensive, special-purpose scientific and technical program for development of the sector up to the year 2000 and of plans for scientific and technical progress for prospects in the more immediate future. He dwelt on improving the technology and organization of the transport process, and he demonstrated how, in light of modern demands, train traffic management is being reorganized, and how the struggle for strengthening discipline and increasing the responsibility of railroad workers for the business entrusted to them is being carried on practically. The indicators for transport operations during the period which has elapsed since the November (1982) Plenum of the CPSU Central Committee visibly attest to the first fruits which all of this has borne.

Since November of last year, the transport plan has been fulfilled consistently. Since the start of this year, more than 21.6 million tons of diverse national economic cargoes have been dispatched above and beyond the plan. In comparison with the similar period from last year, the increment exceeded 58 million tons. Average train weight has increased, car turnaround has been accelerated, and the quota for the most important economic indicator--the growth of labor productivity--has been exceeded. A fine start has been made. But there still lies ahead great and intense, creative work, having as its goal liquidation of debts and coping with the quotas for the five-year plan as a whole.

The minister devoted considerable attention to the radical restructuring of work styles and methods which is under way at the ministry, on the railroads and at transport enterprises after the sharp criticism at the November Plenum of the CPSU Central Committee. He stressed: railroad workers have come to understand that transport should improve its operation WITHOUT DELAY, that the plan should be fulfilled under any circumstances and not only on the whole, not only based on key cargoes, but throughout the schedule of indicators. The transport requirements of all sectors of the national economy and of each enterprise should be satisfied.

Along with the technological and organizational restructuring, a serious change in the attitude toward people, toward cadres and the use of moral and material stimuli is showing up beneficially. Cadre policies are now executed in strict accordance with Leninist and party principles. The ministry, together with the central committee of the trade union, brought order to determining the winners of socialist competitions so that first place and the awards might actually be conferred on the most worthy collectives, those who achieved the best qualitative and quantitative indicators, those who fulfilled all conditions of the competition.

The minister dwelt on the most important questions associated with increasing the reliability and service life of means of transport, without which the regular work of the steel main lines is unthinkable. He told of the concrete measures which are being taken to improve the operation of the locomotive fleet, primarily the diesel locomotives. What is being done and what is planned to be done to improve the technical condition of the rail cars to the level of modern requirements was shown. Those difficulties which transport is experiencing due to inadequate delivery of rails and switches were also illuminated. The detriment to traffic which a large number of warnings about track conditions causes was visibly demonstrated. He reported about measures being taken to correct the situation.

A complicated situation has now developed on the Central Asian Railroad and the lines adjacent to it. In recent years, the economic system has developed rapidly in this region, while the transport capabilities have grown only at an obviously inadequate rate, there have been many miscalculations permitted by the railroad workers themselves. And now, because the Central Asian line is not receiving them, dozens of trains have to be left at intermediate stations on the neighboring Alma-Ata and Tselin Railroads. And this is given a significantly increased volume of transport in this region as opposed to last year. Now measures are being taken here to more rapidly remove the barriers from in front of the trains.

Both in his speech and in responses to numerous questions from journalists, N. S. Konarev dwelt in detail on improving the rail transport management structure. In principle, the structure which has developed historically (minister--railroad--divisions--line enterprises) justifies itself and is appropriate for the specific nature of a sector's work. At the same time, it is absolutely necessary to improve management. There are many censures, particularly for non-coordination of the activities of main administrations

and services in passenger transport administrations. This question is now being studied in detail, from all sides, so as not to make a hasty decision, not to make errors.

It is necessary to strengthen and to improve the interaction of the various types of main line transport in every way possible, both among themselves and with industrial transport, and to distribute the freight and passenger traffic efficiently. Even today the Leninist principle of the extraterritoriality of transport plays an important part in the successful servicing of the entire national economy. Formation of new railroads and divisions on a territorial principle resulted in the appearance of additional junctions and, that means, obstacles in the path of rail car flow.

The minister elucidated in detail for the assembled company the problems connected with increasing the speed of train traffic and with the introduction of high-speed passenger trains into service. Here an economic approach, a thorough calculation of requirements and capabilities and a proper determination of priorities, is important.

Transport plays a big role in realizing the Food Program. Now special equipment for transporting vegetables and fruits from the south of the country to Moscow and other industrial and administrative centers is being developed.

On behalf of the Ministry of Railways Collegium, the minister asked the journalists to show the work of our industry and the prospects for its development on an even broader scale, to tell of the selfless work of the railroad workers vividly, to help cultivate in them a feeling of pride in their profession and to uncover shortcomings even more energetically. This will facilitate the further progress of transport work and the successful fulfillment of responsible tasks set for it by the party and the government.

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## RAIL SYSTEMS

### NEW ELECTRONICS TECHNOLOGY APPLIED TO SOVIET RAILCAR DESIGNS

Riga SOVETSKAYA LATVIYA in Russian 3 Jul 83 p 2

[Article by Ya. Stabulniek: "New Type Railcars" under the rubric "Union of Science and Labor"]

[Text] Semiconductor electronics started in our country in early fifties and has developed rapidly since then. In many ways this was determined by research in physics and semiconductor technology. Today research in these fields has become a permanent part of the program at the Physics and Power Engineering Institute of the Latvian SSR. In the field of application, using contemporary semiconductor technology, scientists from the institute are working on improving and developing potential electrical supply systems for trains.

First experiments in the usage of electric semiconductor devices in railroad transportation were undertaken more than 20 years ago. These experiments were aimed at substituting coal-fired boilers with electrical energy. At that time, in the sixties, our institute did experiments on automatic temperature control in rail cars, and searched the optimum design for such a heating system. Several experimental railroad cars were constructed that incorporated our studies. Tests confirmed that these cars were highly reliable. Starting in 1972 passenger trains with combined [conventional and electrical] heating were introduced on a large scale on the nation's railroads.

At the same time high-voltage static converters were being developed for supplying power to some of the cars' electrical lines. Work was carried out with the participation of the Moscow Institute of Power Engineering and the Moscow Institute of Railroad Engineers, as well as the All-Union Scientific Research Institute of Rail Transport. In 1975, the manufacturing of a prototype for a passenger car with a central electrical system and high-voltage static converter was included in the Government New Technology Program. Hard work led to success, and shortly thereafter a prototype OPTS-30 was installed in a railroad car manufactured at the Kalinin Rail Car Plant. Tests conducted at the railroad test circle of the All-Union Scientific Research Institute of Rail Transport as well as on the electrified sections of the Moscow-Rostov-Tbilisi-Erevan and Moscow-Chelyabinsk-Irkutsk-Chita main lines have shown that the prototype was highly reliable. As a result domestic industry today manufactures a series of cars with the fully centralized power supply and air conditioning systems.

The new converter circuit developed by the institute can be used for other converter modifications. For example, high-voltage 50- and 70-kilowatt converters have been installed in electric trains, including the express ER-200. The other, low-voltage type of converter, can be used on ships as a stabilized three-phase-voltage source. And, according to a licensing agreement, one of the modified prototypes was used in the electric power supply system of a restaurant-car manufactured in the GDR.

Experience has shown the advantages of the static converters used in the railroad transportation. These converters are highly efficient. When they are used, the electric power supply does not depend on the train's speed, fuel is saved, and the environment is not polluted.

Mass production of the new type of railcars for the nation's railways will be already starting during the current five-year plan.

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## RAIL SYSTEMS

### GDR'S 'WAGENBAU DESSAU' CONTINUES TO SUPPLY USSR WITH REFRIGERATOR CARS

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 21 May 83 p 3

[Article by G. Gavrilkin and V. Pritula; "Refrigerator on Wheels"]

[Text] A train 600-kilometers long could be made out of refrigerator cars ordered by the USSR and manufactured at the Wagenbau Dessau Plant.

The GDR's railroad car builders have already shipped 30,000 of the so-called isothermal cars for transporting freight and 20,000 passenger cars to the USSR. Upon delivery of the jubilee 30,000th refrigerator car to Soviet railroad representatives, Gunter Gross, director of the Wagenbau Dessau Plant stated that he hoped to be in attendance when the 35,000th refrigerator car is delivered by the end of the five-year plan. There is good reasons to hope for this. Within the framework of cooperation of member countries of SEV [CEMA--Council of Mutual Economic Assistance], the USSR and the GDR are the major producers of refrigerator cars. The Wagenbau Dessau Plant and the Soviet association of the Bryansk Machinebuilding Plant have been long-time partners. Dessau car builders, along with their colleagues from Bryansk, have developed several types of refrigerator cars.

"Engineers and designers from Bryansk are frequent visitors at the Dessau Plant," stated Gunter Gross. "At the same time, many of our specialists have been trained in the Soviet Union."

The first refrigerator cars were manufactured at the Dessau Plant in 1948. They were designed in close cooperation with Soviet specialists. Long-term Soviet orders, along with scientific and technical cooperation between the two countries, has become a solid foundation for success of Wagenbau Dessau, which today enjoys a reputation as a major producer of mobile refrigerator train units.

"Today," continues Gunter Gross, "the Wagenbau Dessau People's Enterprise, which employs more than 3,200 workers, is one of the largest industrial plants in Dessau. A major portion of our production is sent to the USSR, something of which we are not merely proud. Its entire collective understands the responsibility we carry for the quality of our railcars. The workers of our plant put in a great deal of effort in order to achieve success in socialist competition."

The successs of the Wagenbau Dessau collective were marked by government awards. The plant was decorated with the Order of Banner of Labor and with the Order of Karl Marx, which is our country's highest award. This year our plant is working for tenth time to earn the 'Plant of distinguished production quality' award."

The Wagenbau Dessau Plant is one of 16 plants of the Schienenfahrzeug Combine which produces today one-sixth of the world's rolling stock export. In the opinion of Deputy General Director Harry Hegewald, such a successful development of the combine became due to the socialist economic cooperation among the member countries of CEMA and to close cooperation with Soviet colleagues. Specialization within the CEMA framework, in which the GDR is the major producer of passenger cars for the railroad stocks of socialist countries, has led to an increase in the plant's production capacity. Production output value has also tripled.

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## RAIL SYSTEMS

### TRANSPORT CONSTRUCTION MINISTRY OFFICIAL ON ELECTRIFICATION EFFORTS

Moscow GUDOK in Russian 18 Feb 83 p 2

/Article by I. Korbakov, chief of Glavtranselektromontazh /Main Administration of Railroad Electrification/ of Mintransstroy /Ministry of Transport Construction: "Electrification: Affairs and Prospects"/

/Text/ Converting railroads to electric traction and equipping them with automatic block signaling devices, dispatcher centralization and electric centralization of switches is one of the primary means for increasing the cargo and traffic capacities of railroads. The transport power engineer-builders of Glavtranselektromontazh of Mintransstroy perform these specialized jobs.

Collectives of the main administration's trusts ("Transelektromontazh," "Transenergmontazh," "Transsvyaz'stroy," "Transsignalstroy" and "Transteplo-montazh") have made and are making a considerable contribution to improving electric and heat power engineering in all sectors of transport. This also includes, first of all, where it is connected with increasing the cargo and traffic capacities as well as conserving power resources.

Fulfilling the obligations taken on for the 60th Anniversary of the formation of the USSR, the main administration collective realized the plan for 1982 by 15 December, and for the 2 years of the 5-year plan by 1 December. During these 2 years, the collectives of the main administrations' trusts and their linear subdivisions were twice awarded the rotating Red Banner of the CPSU Central Committee, of the USSR Council of Ministers, of the VTsSPS /All-Union Central Council of Trade Unions/ and VLKSM /All-union Leninist Young Communists League/ Central Committee based on the totals of the competition. The "Transsignalstroy" trust (G. Kulygin, manager) and the "Transsvyaz'stroy" trust (V. Sobolev, manager) were the winners.

The labor productivity throughout the main administration increased by 28 percent during the Tenth and the time which has passed of the Eleventh 5-Year Plan. As a result, the number of workers has been reduced during this period by 1,000 persons, while the work volume which has been accomplished not only did not fall off, but increased. The collective achieved this due to mechanization of labor-intensive procedures, incorporation of new equipment and technology for performing jobs and widespread use of the brigade subcontract. A number of operations were shifted "from the field" to plants, for which three of the main administration's plants were renovated.

The power engineer-builders finished the second year of the Eleventh 5-Year Plan successfully. Trains took off under electric power over the Druzhinino-Yanual, Baranovichi-Brest and Vologda-Cherepovets sectors, over the Ufimskiy junction bypass and other sectors. In all, about 9,000 kilometers of railroad were converted to electric traction in 1982, about 2,500 kilometers have been equipped with automatic block signaling and more than 5,000 switches have been equipped with electric centralization. About 1,500 kilometers of new construction has been outfitted with power supply equipment, including a 300-kilometer-long stretch between Postyshevo and Urgal on the Baykal-Amur Main Line, as well as secondary tracks and a number of other sites.

The work of installation organizations went on in a more organized manner than previously, and the builders helped us a lot toward this end. They started to turn over more regularly the service and technical buildings and the contact network supports for installation work. Collaboration with the operations experts was a great help.

However, it is impossible not to mention the shortcomings as well. Electrification of railroads and equipping them with automation devices is being performed extremely irregularly. Thus, having brought the rate of railroad electrification up to 2,300 kilometers per year in the 1960's, USSR Gosplan and the Ministry of Railroads subsequently reduced the quotas for electrification sharply. In 1978 only 540 kilometers were converted to the new form of traction. In subsequent years, plans changed sporadically from 1,300 to 830 kilometers.

The same thing is also happening with construction of automatic block signaling. In 1972 automatic block signaling and dispatcher centralization was introduced on 3,300 kilometers, whereas in 1983, only about 2,000 kilometers in all is being planned for. When there is no clarity concerning the work volumes for future years, it is difficult to create and maintain the capacities of building and installation organizations at necessary levels.

We consider that USSR Gosplan and the Ministry of Railroads must develop and affirm a general plan for electrification and outfitting railroads with automation devices. This plan should be made the basis for planning the work uniformly, with growth every year.

This year 1,050 kilometers of railroads must be electrified, 1,926 kilometers must be equipped with automatic block signaling and dispatcher centralization devices, about 5,000 switches are to be centralized and 1,680 kilometers of mainline cable communication lines are to be constructed. We also must do considerable work to increase power supply and the installation of industrial scale boiler facilities.

Electric engines should go into use over the entire Moscow-Brest route. Conversion of the Far East route and the Moscow-Kazan-Sverdlovsk route is continuing. The new rail line to the "petroleum storehouses" of western Siberia, the Surgut-Noyabr'skaya line, is being outfitted with a progressive automated block signaling system. Many other jobs still lie ahead.

Now a competition for high-quality, ahead-of-schedule fulfillment of the quotas for the third, the central, year of the 5-year plan is being widely developed at all of the most important sites. The "Transelektromontazh" trust emerged as the initiator of the competition.

The guarantee for successful fulfillment of quotas is intensive work. These days the foremost collectives of the main administrations' specialized trusts-- electric installation trains Nos 702, 704, 706 of the "Transelektromontazh" trust, electric installation trains Nos 751, 766 and 767 of the "Transenergomontazh" trust, the building and installation trains Nos 801, 802 and 804 of "Transsignalstroy" trust, building and installation trains Nos 864 and 868 of "Transsvyaz'stroy" trust and the specialized installation and setup administrations Nos 768 and 769 of "Transtepломontazh" trust are working extremely well. The collective overfulfilled the plan for January. However, we also see the shortcomings in our work clearly. We also see production reserves. First of all this means strengthening labor and production discipline, reducing the turnover in the workforce and improving the quality of our daily work. Sometimes breakdowns in material and technical supply, supply of complete sets of equipment and leaving the front of installation work occur. It is necessary to reduce the amount of manual labor. Much must be done to improve the social and living conditions of the installation workers, particularly housing.

General Secretary of the CPSU Central Committee Yu. P. Andropov, at the November (1982) Plenum of the CPSU Central Committee, emphasized in particular the need for raising labor productivity, the primary indicator of the efficiency of an economic policy. The main administration's collective will insistently eliminate shortcomings in their work and increase labor productivity.

But not everything depends on us, we also need the assistance of the Ministry of Railroads. Provision of "windows" at times and days coordinated by a schedule must be made a law. Repealing the "windows" results in idle time for the brigades, disruption of labor discipline and other negative consequences.

Every year we must set aside repair sites for reconditioning about 30 installation trolleys such as the AGVM and DM. Further delay in resolving this question will result in stopping the installation trolleys, and, consequently result in breakdown of operations.

The USSR Committee on Vocational and Technical Education should assist in training up to 900 installation specialists in railroad electrification in the GPTU /Municipal Vocational and Technical Schools/, as this is called for by a reciprocal decree. The training of only 300 specialists, as was the case during past years, is inadequate for fulfilling the growing work volumes in rail electrification.

Transport power engineer-builders are applying all their efforts to fulfill the quotas imposed on them and thereby aid in overcoming more rapidly the difficulties present in rail transport.

## RAIL SYSTEMS

### TRANSBAYKAL RAILROAD ELECTRIFICATION BEHIND SCHEDULE

Moscow GUDOK in Russian 28 Jun 83 p 2

/Article by N. Dunayev, stationmaster, Belogorsk: "Electrification: From Mutual Grievances to Mutual Assistance"/

/Text/ An important stage is starting for the electrification workers of the Transbaykal Railroad. By the end of the year, electric engines should be running over the Arkhara-Belogorsk sector.

In recent months, the work tempo has increased. In April and May 306 kilometers of developed contact network were turned over for installation, and the contact network was installed over 198 kilometers. However, on the whole, lags have not yet been liquidated over the sector. The traction substations in Belogorsk, Bureya and Zavitaya are being built slowly, as are electric centralization stations at the Vozzhayevka and Zhuravli stations.

The situation is aggravated by the fact that delivery of metal structures for the supports has been planned for the fourth quarter and it is necessary to start up the Arkhara-Zavitaya section during the third. An obvious discrepancy!

The collective of the "Zeyagesstroy" trust, general subcontractor of the Zavitaya and Novobureyskaya regional substations, has made use of only 5.8 percent of the resources in 5 months. If that which has been left undone is not made up in the near future, it will be difficult for all, both the installation trains and railroad workers, during the prestartup period.

The "Tyndatransstroy" trust is slowly being drawn into work to build housing, as is the "Tsentrobamstroy" trust for installation of the contact network. Nor is the collective of "Dal-svyaz'stroy" trust in any hurry.

Yekaterinoslavka station. During construction of the duty station, it was necessary to bring out cable for the contact network. Everyone had agreed to that a month ago, but to date nothing has been done. The general contractor, who had only one copy of the project for bringing out the cable for some reason, did not present it to the subcontractor, the "Tyndatransstroy" trust. Of course, it would have been possible to carry on the work, had they desired, using the existing copy, having requested "Dal'giprotrans" concerning dispatchment of the supplementary cable. But everyone preferred to sit with their hands folded.

In such extremely characteristic situations, it is difficult to find guilty parties: formally, everyone is correct. Frequently they hide each other because of the many subcontracting organizations.

Delays are constantly arising because of various unclear points in the working documentation. The "Dal'giprotrans" design institute didn't get it out to the sites on time. They drew up the blueprints in a hurry, and there are therefore many errors. And this, naturally, leads to protraction of construction. At the Domikan station, upon examination of the building for the electric centralization point, the chief of the Department of Capital Construction of the Transbaykal Railroad, A. Perelomov, justifiably rejected it and required that it be rebuilt.

The most flagrant violations were permitted during construction of the traction substations at Bureya and Zavityaya. The reasons for this lie in poor knowledge of the project and the SNIP Construction Norms and Specifications by those performing and those who managed the work, and by the low skills of construction personnel. Obviously, high standards are necessary from the workers in power sectors and the department of capital construction, who control construction quality. It must be said that railroad workers are making great efforts for the success of the matter.

"We have never encountered such interest and such efficient assistance on any other railroad as we have on the Transbaykal Railroad," says Yu. Chuprin, manager of "Transstroyemkhanizatsiya" trust. "Our needs are their needs. There is a full possibility of completing installation of the contact network over the entire section before cold weather sets in."

However the highly productive equipment of the aforementioned trust is being poorly utilized by the general contractor. In April and May idle time for the foundation pit excavators due to lack of a work front and a shortage of cranes and fuels and lubricants cost almost 100 man-days....

Finally, after a 4-month lull, work on electrification of the Belogorsk station has come up to full speed. Each day three installation trains and a single mounting train lay foundations, supports and anchors, weld the rigid crossties and lay track for the station over them.

The railroad workers are glad for such a swing in operations. They are making "windows" available, and, in order to use the time more efficiently, all of the junction's workers are carefully preparing for the work to be done with the builders the day before.

And working in a "window" is truly a creative, complex operation. In this case, it is necessary not only to subordinate the management of many and the equipment they operate to a single will, but also to provide safety and the required traffic flow.

...The boom of the crane operated by R. Kraulaydes' rises slowly. On the hook is a 44-meter rigid crosstie designed to serve seven tracks. Having raised it up high, the equipment operator slowly brings one end down to the welded support.

Using ropes, more than 10 workers fix it in place. Train movement on the seven tracks being covered has been frozen. A time of 10-12 minutes passes while the operator smoothly lowers one end of the crosstie, having seated the assemblies on supports. And then he begins to "sight in" with the other end.

It would seem that this process is simple and uncomplex, uncomplicated and as far as the procedure is concerned, the preparations require  $1\frac{1}{2}$  hours on the average. At the station, the efficiency experts started thinking of how that time could be reduced. Then, under the direction of chief engineer Ye. Malyk and sector chief Yu. Masensov the engineers and technicians worked out an efficient technique for installing rigid crossties. Now the largest of them is installed in 25-30 minutes instead of 1.5 hours, and the average size and small ones are done in 12-15 minutes instead of 30.

Conclusion of a socialist agreement under the motto "From Mutual Grievances to Mutual Assistance" has had a positive effect on the course of electrification. The station workers aid builders by bringing up the cars with the needed materials and emptying them at an accelerated pace, and they are leaving "windows." Then the builders assign personnel for track straightening and eliminating offgauge places.

There are, unfortunately, shortcomings as well. Because of miscalculations by "Dal'giprotrans" the drainage at the Belogorsk-2 station have been incompletely designed. Here in places where the ground is affected by frost heaving or flooding, it has been planned to set in the supports without foundations. The client is obligated to correct the situation quickly.

The traction substation and the duty station for the contact network are being erected slowly: development of the track and backfilling of the platform to level are still not completed, and the zero cycle of the traction substation is not fully prepared.

Frequent diversion of personnel to other sites, low availability of machinery, and lack of materials, as well as inadequately precise organization of work are constantly disrupting the work schedule. In spite of the assistance by junction railroad workers, the matter is moving ahead slowly. This threatens the startup of electric power traction along the entire Arkhara-Belogorsk section. And this is in spite of the fact that the subdivisions which are doing the electrification work have adequate labor resources at their disposal, as well as the equipment to carry out the targeted tasks. Maximum mobilization of the efforts of builders, installation workers and operations specialists is necessary. Precise organization of the work and a businesslike interaction among the collectives participating in electrification of the railroad are also needed. And, of course, a top work pace is needed.

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CSO: 1829/290

## RAIL SYSTEMS

### POMOSHNAYA-DOLINSKAYA LINE ELECTRIFICATION BEHIND SCHEDULE

Moscow GUDOK in Russian 30 Jun 83 p 2

/Article by I. Shchipachev, chief engineer of the electrification and power service: "...And Even the Suppliers Are Letting Us Down: What Is Delaying Electrification of Pomoshnaya-Dolinskaya Section?"

/Text Opening of this section has been specified during the third quarter of this year by the State plan. In the startup complex affirmed by the MPS /Ministry of Railroads, three traction substations and three power supply points for the contact network are included along a 144-kilometer operational length of railroad.

Moreover, 35 kilometers of mainline cable communications must be laid, along with 4.9 kilometers of track. It is also necessary to connect more than 60 new switches to the electric centralization and to renovate the existing system.

Of course it is necessary to worry about the residential and living conditions for the specialists who will start to work here. Three 8-unit and one 16-unit buildings will be built.

Intensive work lies ahead of us. In the past year, just slightly more than half of the building and installation work was completed. It is true that now the work rates have picked up somewhat in comparison with last year. At first glance it would seem that everything were going well. Electrical traction was put into service between the Vysotskoye-Kropivnitskaya and the Oleynikovo-Kropivnitskaya stations, a distance of 13.2 kilometers, ahead of schedule by 1 May. This made it possible for cargoes from the Pomoshnaya-Kolosovka to be delivered to Kropivnitskaya by electric engine, and released the diesel engines which were bringing them in.

However, the introduction of electric power traction over the entire 144-kilometer Pomoshnaya-Dolinskaya section during the third quarter is already threatened with disruption. The chief of SMP-514 /building and installation train-514 N. Lyulin has concentrated about 50 men on the traction substation at Osikovata without having completed construction of the duty station for the contact network at Kropivnitskaya station (the deadline for putting it into operation was May). But it was not turned over for installation work on time either. On the surface, the cause seems justified: there were no metal

structures for the open distributing devices. The Novomoskovskoye administration for mechanization of "Dneprtransstroy" trust supplies them. But nevertheless the primary cause for the disruption was poor organization of the work.

The building-installation No 526, where V. Sidorov is chief, is erecting the traction substation at Sugokleya. The deadline for turning it over for installation work was May, and in reality it will be much later. And this traction substation is of primary importance to the operations specialists, for it is a key station and requires a great deal of time, both for installation and for adjustment work.

Installation of hangers on the Timkovo-124th Kilometer and 124th Kilometer-Dolinskaya runs was delayed because of late delivery of foundations for the contact network supports by the Darnitskiy plant of Glavstroyprom and of struts from the "Krasnodartekhprom" plant. The deadline for turning over the contact network on the Osikovata-Bohrinets and Bohrinets-Sidnevka runs is also in danger of being broken. Here there is a lack of supports and foundations: they are owed by the Tolmachevskiy and Darnitskiy plants of Glavstroyprom.

An alarming situation has developed at Bohrinets station: there is a shortfall of the rigid crossties which the Novomoskovskoye administration of mechanization of "Dneprtransstroy" trust manufactures.

It is incomprehensible by what deadline the workers of SU-77 /building administration-77/ and the "Transvzryvprom" trust are planning to complete preparations of 153 foundation pits under the supports of the contact network along the Bohrinets-Sidnevka run and at Bohrinets station. In order to accelerate matters, it is necessary to increase the number of workers who are engaged in explosives work at the site and to add equipment--perforators and compressors.

The project also provides for the hanging of the contact network to be done both during the "windows" as well as "from the field" without disrupting train traffic. More than a third of all operations can be performed "from the field." However, citing the lack of necessary equipment, all of the construction organizations of "Odesstransstroy" are working only during the "windows."

A particularly alarming situation has been created with erection of the 150-kilovolt electric power transmission lines to the traction substations, the construction of which falls within the jurisdiction of the USSR Ministry of Power and Electrification. Only a few months remain before the initial object of the electrification program is put into service while the client, the Kirovograd Eastern enterprise for Electric Power Systems does not as yet have a plan for capital construction of these lines.

There are still many unsolved problems and shortcomings. We think that the time has come when it is necessary to have representatives of the main administrations of the Volga and Southern Railroads, as well as of "Transvzryvprom" and "Transelektromontazh" trusts, on hand for an expeditious solution to the problems. Everything necessary must be done to have electrification of the Pomoshnaya-Dolinskaya sector completed on time.

## RAIL SYSTEMS

### RAILCAR REPAIR INITIATIVE MEETS VARIED LEVELS OF ACCEPTANCE

Moscow EKONOMICHESKAYA GAZETA in Russian No 23, Jun 83 p 14

[Article by V. Makhovoy: "Cars in Good Working Order Now Being Loaded"]

[Text] Enterprises from industry, construction and other sectors have concluded more than 5,600 agreements for rail car and container repair with railroads since the start of the year. On the sidings of the industrial enterprises, 52,000 cars and 16,400 containers have been repaired.

Among enterprises of the petroleum refining and petrochemical industry, the number one place in propagating the Muscovites' initiative belongs to the Yaroslav tire plant. Here 3,133 cars have been repaired in 4 months. Up to 25 closed cars are being reconditioned at the same time on a track which has been specially set aside for this purpose. Comprehensive repair brigades have been set up with the active support of railroad workers on the Northern Railroad. In each there are electric welders, carpenters and mechanics. Ten welding units have been set up and scaffolding has been outfitted with hand tools and small power tools. Night-time car repair has also been organized. As a result, 25-30 closed cars are turned out every day for loading. And this constitutes almost half of this plant's need for rolling stock.

Things are also going well at the Omsk tire plant which concluded an agreement with the Siberian Railroad, as well as in the "Bobuyskshina" production association and at the Dnepropetrovsk tire plant to repair 4,000 cars and containers during the current year.

At the same time, the initiative of the Muscovites has still not received wide dissemination at individual plants. For example, since the start of the year, only 80-100 cars (less than 1 car per day) have been repaired at the Voronezh, Barnaul, Kirov and Krasnoyarsk tire plants. Only 30 closed cars were repaired in April at the Chimkent tire plant. The economic managers of the Yerevan, Volga, Baku and Nizhnekamsk tire plants are shunning rolling stock repair under various pretexts.

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## RAIL SYSTEMS

### LUKEWARM RECEPTION FOR RAILCAR REPAIR INITIATIVE ALONG CENTRAL ASIAN RAILROAD

Tashkent PRAVDA VOSTOKA in Russian 28 Jun 83 p 2

[Article by G. Valitskaya, chief of the car service department, Central Asian Railroad: "Rail Cars...Tied up -- How Not to Support an Initiative"]

[Text] The initiative of the Muscovites who decided to help railroad workers repairing the car and container fleet met a good response in many of the labor collectives of our republic which use rail transport services.

One hundred thirty-three enterprises have concluded an agreement with subdivisions of the Central Asian Railroad.

However, the value of an initiative is in being supported with concrete acts. Let's take a look at the facts. In March only 1,272 cars and 243 containers were repaired, significantly less than the commitment.

The Kuylyuk bridge structure plant, the Glavtashkentstroy Second Building Construction Combine, the Samarkand Chemical Plant, the Bukhara Granite and Gypsum Combine, the Kuyumazar quarry of UzSSR Ministry of Construction and a number of other enterprises which concluded agreements with the railroads have not as yet repaired a single car.

Such major freight consignees as the Uzbek Metalurgical Combine, the Bekabad portland cement combine and the Akhangarantsement PO [production association], who were responsible for putting 87, 24 and 24 cars out of order, respectively, are still holding out.

Supporting the initiative and concluding agreements is a voluntary affair, but insuring breakdown-free transportation of national economic cargoes is important to everyone.

Therefore, the enterprises using rail transport should at least put those cars and containers back in working order which they themselves periodically damage.

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## RAIL SYSTEMS

### PROGRESS OF RAILCAR REPAIR INITIATIVE ON FAR EASTERN RAILROAD

Moscow GUDOK in Russian 9 Jul 83 p 1

[Article by G. Solomin, chief of the rail car repair and operation department, Rail Car Service, Khabarovsk: "Even More Can be Achieved"]

[Text] Rail car workers of the Far Eastern Railroad, with the active help of local party units, have attempted to make sure that the experience of the Muscovites became known to as great a number of collectives from industrial and construction enterprises from Khabarovsk and Maritime Krays and Sakhalin Island as possible. They started by supplying technical documentation to their clientele and organizing the training of future repair workers. Now the main line's departments have concluded an agreement for reconditioning rolling stock with 79 enterprises. About 1,200 cars and 264 containers have already been repaired by them. It is estimated that because of this they were able to transport an additional 50,000 tons of cargo and noticeably reduce expenses for shunting operations connected with taking their railcar "patients" into the depot or to repair points.

Car repair was better organized than elsewhere at the "Spassktsement production association and at the Teplozerskiy cement plant. At the association, reconditioning of empty cars is in progress around the clock. Special brigades do carpenter, mechanical and electric welding work. They repair the rolling stock on a separate track. The brigade chief of the preparation point or the senior inspector and a representative of the enterprise check the cars beforehand and determine the extent of reconditioning. In doing so, they compose an official document of established format listing the necessary jobs and showing spare parts and materials that will be expended. The time period for carrying out the repairs is also agreed to in this document.

A representative from the depot also receives a car at the cement workers' shop. If it does not exceed two hours, the time spent on reconditioning a "patient" is not included in determining idle time. This is specified by the agreements and therefore it stimulates our clientele to work at repairs seriously, economically.

As far as the rolling stock damaged at the enterprises is concerned, official documents are composed for it as well, but of a different format, and after the reconditioning work, such cars are not included in the total number of cars repaired.

The railroad workers supply Spassk cement workers with spare parts for reconditioning the empty cars. Parts removed from cars withdrawn from the inventory or those manufactured at the Ruzhino depot are usually included.

The work rates of enterprises at the Ministry of Ferrous Metallurgy are growing. Empty car reconditioning is well organized, for example, at "Vtorchermet" Production Association of the city of Khabarovsk and at the "Amurstal" metallurgical plant in the city of Komsomolsk-on-Amur. Two brigades for car body repair have been set up in the railroad shop by an order from L. Rozhko, director of "Amurstal". Since the plant is one of the most important industrial enterprises in the city, they have allocated a "Donbass" machine to it.

The Muscovites' initiative is also being supported on Sakhalin Island, where workers of the Slavskiy lespromkhoz [industrial timber farm] and the Sakhalin Sales and Supply Collective are among the first to take up rail car repair. The matter has been well established at individual industrial enterprises of the Maritime region which is served by the Vladivostok division of the railroad. Thus, the Vladivostok sea port repaired 418 cars, and the Nakhodka port, 285. But over the division as a whole, the state of affairs is not well so far. Many industrial enterprises have not as yet taken on car and container reconditioning, but are still just looking into it.

Soberly evaluating what has been accomplished, we, the railroad workers, are still not satisfied with it. It is possible, and necessary, to do more. What hindered us? The main difficulty was the funds for materials. When agreements are concluded, many enterprises demand that we allocate rolled ferrous metal stock, electrodes, etc. And where are we to get all of this?

To no small extent, we are also to blame for the fact that the Muscovites' initiative has not yet caught on at a number of industrial and construction enterprises in the Far East. Why are we delaying organization of repair work at the plants of "Dal-sel'mash" and at the power transformer plant in the city of Birobidzhan? It is because neither the chief of the Obluch'ye depot, A. Markevich, nor the deputy chief of the rail car department of the Khabarovsk division, V. Pidzhakov, who are directly responsible for propagating the initiative of the Muscovites, have shown either managerial efficiency or persistence.

The repair of rolling stock using common forces and attracting workers of the industrial enterprises to this task is a problem of great significance, and we will do everything to resolve it.

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## RAIL SYSTEMS

### BRIEFS

**TUNNEL LINE FINISHED**--The N. Velikiy track-laying brigade from the Nizhne-angarsktransstroy Trust completed laying track in the Baykal tunnel in 11 work shifts instead of the planned 14. During the final days of work the 7 km rail line "grew" about 900 meters each shift. The Komsomol youth brigade continued their great effort begun in October of 1978. Therefore the Velikiy brigade was accorded the honor of cutting a scarlet ribbon at the tunnel's western end. Now the 6.75 km rail line is ready for the first train. [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 3 Jun 83 p 1] 9964

**LOCOMOTIVE FLEET MODERNIZED**--The locomotive fleet at Volkhovstroyevskoye depot has been completely modernized. Diesels of the old TE-3 type were used here until quite recently. They were replaced by 2M-62 diesels which are produced by the Voroshilovgradskiy Factory. These modern units are rated at 4,000 horsepower and are capable of pulling a heavy load at speeds up to 120 km per hour. Modern rail technology will speed up freight shipments to the northwestern part of the country. In particular the number of freight trains heading for Cherepovets and Petrozavodsk has increased. Such major industrial enterprises as the Kostomukshskiy Ore Concentration Complex, the Cherepovetskiy Steel Works and the Pikalëvskoye Glinozem Association are all located here. Railroad workers from the neighboring Kemskeye and Medvezh'yegorskoye locomotive depots are helping those from Volkhovstroyevskoye with transport work. The Ministry of Railroads, in order to modernize their locomotive fleets, has ordered 60 diesel locomotives of the 2M-62 type for Kemskeye and 55 for Medvezh'yegorskoye. It won't be too long before such powerful and reliable diesels will be the only ones to service the entire northern route of the Oktyabr'skaya Railroad. [By P. Slavin] [Text] [Leningrad LENINGRADSKAYA PRAVDA in Russian 28 Jun 83 p 1] 9964

**PRODUCTION OF NEW LOCOMOTIVES**--The Lyudinskoy Locomotive Works has begun trial production of the TGM-9 switch engine equipped with hydraulic drive. The appearance of a new locomotive is an important event for those who took part in its design, and the appearance of the TGM-9 is doubly important. This engine is the first of a standard line all of which are rated from 750 to 1,200 horsepower. Research done by specialists from the enterprise and from the All-Union Scientific Research Institute of Rail Transport indicates that the ensuing reduction in the number of parts and detail work will lessen labor inputs in basic production by 20-22 percent. The Lyudinskoye

locomotives are well known both in fellow socialist countries and in other nations and are praised for their high performance capabilities. Almost 86.5 percent of the enterprise's production receives the state Symbol of Quality, and the remaining engines fall in the first quality category. The present year will witness the birth of still another locomotive, the TGM-2, rated at 1,200 horsepower. Blueprints have already been worked up for this locomotive. [By I. Pronin] [Text] [Moscow IZVESTIYA in Russian 14 Jul 83 p 1] 9964

NEW ChTE-130 LOCOMOTIVE--The ChTE-130 locomotive, rated at 12,000 horsepower, completed its first run. Designers, technicians and workers from the Voroshilovgradteplovoy Association completed work on it. Our country's locomotive construction industry has never seen an engine with such tractive power. These engines will be working on the Baykal-Amur line and are capable of reaching speeds of 120 km an hour. [By N. Mokrishchev] [Text] [Moscow TRUD in Russian 24 Jul 83 p 1] 9964

ROBOT LOADS RAIL CARS--An automated device is now replacing a 10-man work brigade in the unloading of rail cars. The Lvov Konveyer Association is producing a line of such devices. Three interconnected belt conveyors uniformly stack crates in the rail car. The device is controlled by one operator. The high productivity, almost one car an hour, means that freight cars spend less time standing idle. Use of this new device suggests a large benefit at freight yards of vegetable supply areas. Current operating plans of the enterprise did not envisage production of this mechanized loader. Machinists at Konveyer were searching for work reserves and, having rebuilt one of the lines, organized a section for the robot assembly. By the year's end 100 automated loaders will be produced. [Text] [Moscow GUDOK in Russian 3 Aug 83 p 1] 9964

NEW CONTAINER TERMINAL--A powerful gantry crane lifted the first large-volume container from the platform and accurately placed it on the ground. Thus on August 5 the new terminal was put into operation at the Moscow-Kiev freight station. It can handle 500 large-volume containers. This is already the third such terminal on the Moscow-Smolensk division. The first large-container station to be built was Kuntsevo-2, but it was unable to handle the increasing number of rail cars. Freight trains waited to be unloaded. Then a collective from the division completed on their own the first line for a terminal at the Moscow-Smolensk freight station. And as this was inadequate, the third one was opened. "We are very happy with the opening of the new one," claims O. Voytov, head of the mechanized section for loading-unloading of containerized and packaged shipments on the Moscow line. "However we are not stopping here. In the near future we will construct the second line of the terminal at the Moscow-Smolensk freight station and also a container area at the Moscow-Paveletskaya freight station." Meanwhile the new terminal is receiving its first loads at Moscow-Kiev freight. [By I. Kokoyulin] [Text] [Moscow GUDOK in Russian 9 Aug 83 p 2] 9964

NEW LOCOMOTIVE -- Rostov-on-the-Don -- The first test model of the 12-axle "VL-85" locomotive has been assembled in the Novocherkasskiy Electric Locomotive Construction Plant. This series of machines is designed to pull heavily loaded trains weighing more than 10,000 tons over the Baykal-Amur Trunkline. The locomotive has all the essential qualities for this. The output

of its engine is 13,200 horsepower, and its designed speed is up to 130 kilometers per hour. Its assemblies and components are designed for steady operation with temperature variations from a +40 to a -60 degrees. The creators of the new machine -- the scientists of the All-Union Scientific Research Institute for Electric Locomotive Building and the Novocherkassk electric locomotive builders -- paid particular attention to the economical operation of the locomotive. It uses eight percent less electrical energy per unit of output. The specific consumption of material has also been lowered. All this permits an economic effect of 20 million rubles per each 100 machines to be obtained. After thorough testing -- and this is planned to be ended by 1985 -- serial production of the new electric locomotives will be begun. [By I. Seledtsov] [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 5 Jun 83 p 2 ] 8802

HEAVILY-LOADED TRAINS-- Tselinograd-- the first train with a weight of more than 11000 tons traveled on the Tselinnaya two years ago. Since that time, a mass movement to increase the weight and length of trains has begun. Applying the experience of the Moscow road, the trunkline workers have driven more than 100,000 heavily-loaded trains in which more than 52 million tons of freight in addition to the quota have been transported. As a result, the average weight of a train has increased by 98 tons since the beginning of the five-year plan, significantly exceeding the general network indicator. The Tselinnaya railroad workers have acquired sufficient experience in forming and driving heavily-loaded trains; however, many questions still remain unresolved. A topical discussion about this has taken place in the railroad aktiv, where problems of increasing the transport and carrying capacity of the mainline were discussed and permanent yards for heavily-loaded and long trains were established. The Tselinnaya workers have called upon their colleagues in the Southern Ural'skaya, Western Siberskaya and Alma-Atinskaya to support the expanded movement of heavily-loaded trains, making the inter-road junctions junctions of friendship and mutual understanding. [By L. Turov, GUDOK correspondent] [Text] [Moscow GUDOK in Russian 8 Jun 83 p 1] 8802

ANTI-CORROSION SYSTEM-- Severodonetsk, Voroshilovgrad Oblast -- Any corrosive liquid can be handled by metallic tanks equipped with the anti-corrosion system which the Severodonetsk specialists have developed. Its construction is not complicated. One end of a conductor is attached to the body of the tank and the other one is lowered into the liquid. A low voltage current is passed over a closed circuit. A chemical reaction occurs under its influence. As a result of this, the tank is covered inside with an invisible film and the metal is not subjected to corrosion. V. Kuzub, a doctor of technical sciences says; "The complexity only consists of selecting an electrical potential for the liquid and the metal at which the film is formed and steadily maintained. We find it for each specific storage system using laboratory methods." An important merit of the system is the insignificantly small expenditure of electrical energy for its operation. It can also be supplied by a storage battery. Railroad tank cars transporting especially pure sulphuric acid are already plying between points with this "accessory". The authors of the innovation are working at creating a protective system for which the energy of a flashlight battery would be sufficient. [Text] [Riga SOVETSKAYA LATVIYA in Russian 22 Jun 83 p 2] 8802

EXPERIMENTAL ROUTES--Minsk--A main tracker composed of 56 freight cars with "Belarus'" tractors left the Stepyanka Station on 10 June on its first test run. At the speed of a passenger train without classification yard stops, this route will continue on to the Alma-Ata Railroad shortly. The experiment is being conducted on the initiative of V. T. Osipov, a doctor of technical sciences and a Hero of Socialist Labor. It is noteworthy that Vasiliy Timofeyevich was among the route trail-blazers on the Belorusskaya. Forty years ago, he worked there as the deputy chief of traffic services. The purpose of the experiment is to speed up the delivery of freight and to organize shipments to large distances without their being handled in stations along the way. According to preliminary estimates, it will be possible to decrease the movement time of these trains threefold. Experimental shipments of MAZ automobiles and SK-100 combines from Gomsel'mash will also be performed over distant routes. [Text] [Moscow GUDOK in Russian 12 Jun 83 p 2] 8802

CURBING ICING-- Baykal-Amur Trunkline-- BAM [Baykal-Amur Trunkline] scientists and designers have found an effective way to decrease icing. This phenomenon of nature has a destructive force. A swiftly forming flaky ice swell warps bridges and road embankments. It is necessary to construct expensive drainage canals and gutters which do not always help. What have the scientists proposed? A bulldozer exposed the water-bearing layer on the slope of the hill where Zolotinka Station stretched out in an amphitheatre. The springs, which erupted from the ground, were transformed with the first frosts into "tongues" of ice which grew before your eyes moving toward the station's installations. The builders tried several ways to halt the icing, but unsuccessfully. Suddenly, it began to decrease by itself and soon disappeared entirely. The strange retreat of the threatening rampart coincided with the start of operations of the borehole which was drilled nearby for the station's water supply. The scientists of the Central Scientific Research Institute for Transportation Construction and the designers of "Mosgioprotrans" decided to check whether this coincidence was accidental. The level of the ground water was lowered with the help of test holes on three sections between Tynda and Ural where ice often advanced on the railroad line. The effect exceeded expectations. In one place alone, approximately 100,000 rubles managed to be saved. Also train traffic safety was increased. [By Yu. Zhigaylov, PRAVDA correspondent] [Text] [Moscow PRAVDA in Russian 12 Jun 83 p 1] 8802

INCREASED CAPACITIES -- Daugavpils (Latvian SSR) -- The Daugavpilsskiy Locomotive Repair Plant has been converted from a consumer into a supplier of spare parts for diesel engines. The large-scale specialized production of prepared items, which were previously supplied from Dnepropetrovsk, has been begun here. Next year, the enterprise will be able to completely satisfy the requirements of the Baltic and Belorussian Railroads' repair services for diesel locomotive bushings. The collective is increasing the plant's output. Recently, the production of almost 200 types of spare parts has been organized here and the straight line flow conveyor method for reconditioning main-line diesel locomotives has been introduced. As a result, the enterprise has begun to produce on line almost twofold more locomotives than previously and has significantly decreased the cost of their repairs. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 14 Jun 83 p 1] 8802

IMPROVED DESIGN--The passenger rolling stock of the Leningrad Railroad Junction has been increased since the beginning of the present summer mass transportation period by 35 new reserved-seat cars of improved design. Thirty of them have been handed over to the Leningrad-Passenger-Vitebskiy Car Depot where they have replaced obsolete cars on four trains of the "Mayak" firm's No 19/20 express on the Leningrad-Odessa service, and five others have been incorporated in the Leningrad-Kislovodsk train No 21/22 which is serviced by the conductor brigades of the Leningrad-Passenger-Moscow Car Depot. Another 20 sleeping cars, 50 reserved-seat cars and six dining cars will be received by the Oktyabr'skaya Trunkline railroad workers before the end of the year. The new rolling stock, which is replacing cars of old design, will permit the standards of servicing passengers on long distance trains to be improved. [By P. Slavin] [Text] [Leningrad LENINGRADSKAYA PRAVDA in Russian 23 Jun 83 p.1] 8802

CSO: 1829/266

## MARITIME AND RIVER FLEETS

### EAST GERMAN-BUILT CONTAINER SHIP 'KAPITAN GAVRILOV' PROFILED

Moscow MORSKOY FLOT in Russian No 6 Jun 83 pp 43-47

[Article by Ye. Belyakov: The Container Ship 'Kapitan Gavrilov' "]

[Text] The Warnow Werf enterprise (Rostok, GDR) is delivering container ships of the "Kapitan Gavrilov" class to the Soviet Union. These ships are a further development of the "Merkur - 1" class container ships (of which the lead ship was the "Khudozhnik Sar'yan") built at this shipyard in the 10th Five-Year Plan and giving a good account of themselves in service.

#### Principal Characteristics

Length:	
overall	173.9 m
between perpendiculars	163.5 m
Beam	25.4 m
Height of side to main deck	15.9 m
Draft:	
specification	9.02 m
to load mark	9.82 m
Deadweight with p.82 m draft	15,950 tons
Speed	21 knots

The design of the new ship was improved on the basis of experience in operating the ships of the first series. Engineering solutions, materials and equipment have been used that assure the creation of a modern ship. For example, on the "Kapitan Gavrilov" class the lines of the forward part of the hull have been improved and an elongated forecastle has been installed to improve the ship's ability to rise up to a wave - this reduces the wetting of the upper deck and substantially reduces damages to on-deck containers during stormy conditions.

To reduce noise levels and vibration in the living and working spaces, the clearances between the propeller and the hull were increased, the lines of the after part of the hull were improved, and the engine room casing was separated from the living quarters and sound insulation was installed. Provision was made for fulfillment of measures in the requirements of the 1973 Convention on Marine Pollution and the Rules of the U. S. Coast Guard for the prevention of sea pollution by ships.

The ship is equipped with the modern means for control, automation, and electronic navigation which assure reliable operation. The ship's container capacity was increased as was the speed and range of navigation in comparison with the "Merkur - 1" class. Measures were taken to reduce the registered tonnage of the ship.

"Kapitan Gavrilov" is a cell-type container ship for transporting only international-standard containers. The hull has double sides in way of the cargo holds, a double bottom, and a continuous upper deck with an elongated fore-castle. There are five cargo holds. The machinery compartment and the living quarters are between holds No. 4 and 5.

The ship was built to the USSR Register of Shipping classification KM\*L1 A2. The amount of automation is in accordance with requirements for class A1.

The specified container capacity is 800 (20-foot) containers having an average weight of 14 tons, making the total cargo carrying capacity of the ship 11,200 tons. The maximum allowable container capacity is 938 (20-foot). This is allowed with containers of reduced average weight and under acceptable navigating conditions. The ship can carry independently refrigerated containers - 40 (forty-foot) and 20 (twenty-foot) units - supplying them with power from the ship's electrical plant. Refrigerated containers are stowed only on the upper deck. There the containers are stowed three tiers high in ten rows across the width.

For stowing and securing containers, all holds have cells with angle-bar guides. On the upper deck containers are stowed on the hatch covers, but the outermost containers rest also on special columns at the sides. The on-deck containers are secured with special fastening gear similar to the "Twistlock" system. This gear is delivered with the ship.

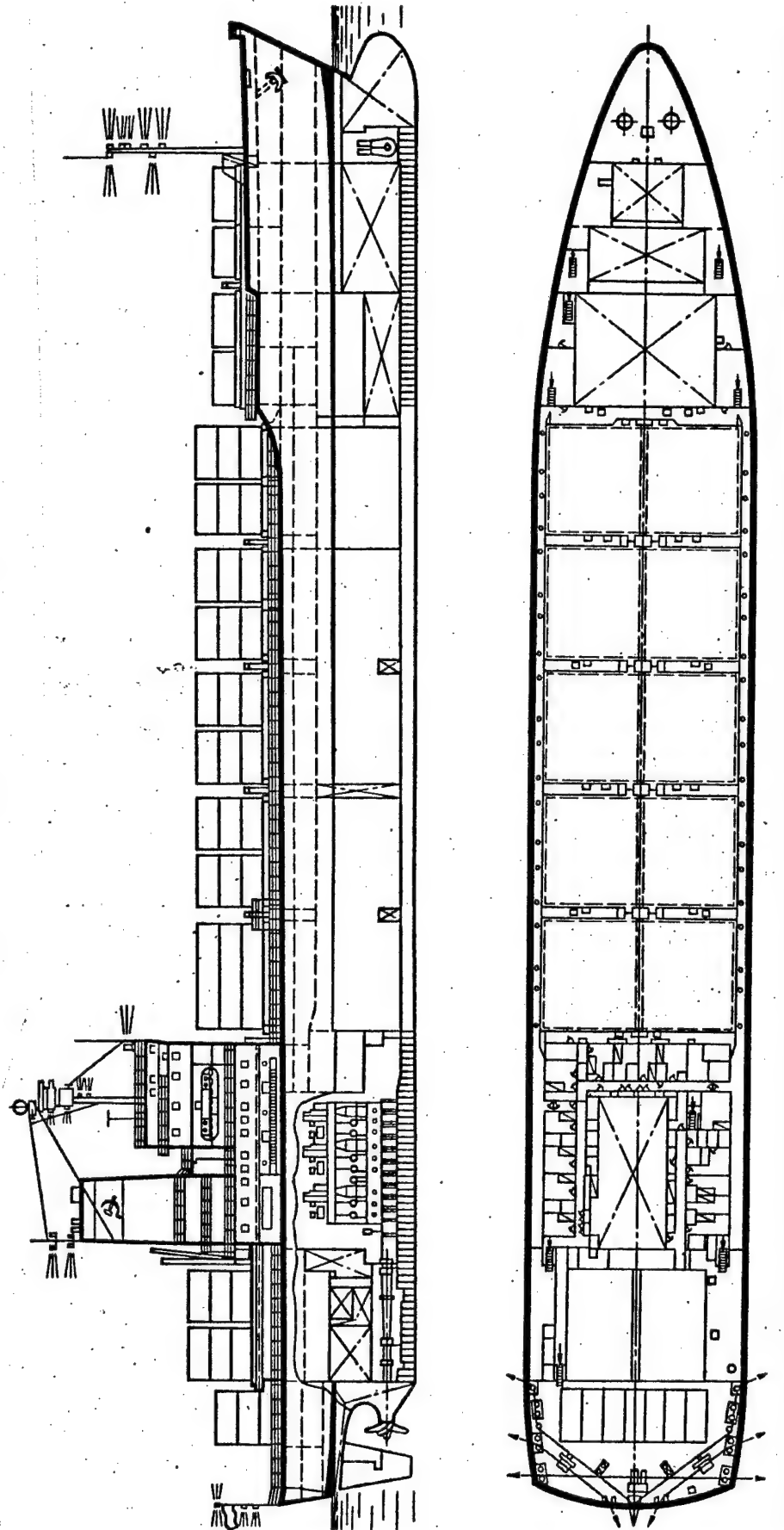
In holds No. 3,4, and 5 (except for the after part of hold No. 4) provisions are made in the cells for 40-foot containers to carry 20-foot containers. On the upper deck both 40-foot and 20-foot containers can be carried. From strength considerations, the allowable weight of 20-foot containers is 20 tons and of 40-foot containers, 30 tons.

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Cargo holds No. 2,3,4 and 5 have double cargo hatches across the width of the ship. In addition, the cargo hatches for holds No. 1,2,3, and 4 are double along the length of the ship.

The ship's area of navigation is unlimited and it is capable of operating in northern, temperate, and tropical zones. In accordance with the ice classification L1, the ship has been provided the capability to navigate behind an icebreaker or independently in freezing waters. The range of navigation based on fuel supply is 21,000 miles. Fuel supplies are located only in segregated tanks and comprise 3,730 tons. Lubricating oil supplies are calculated for 4 months at full power, and cylinder oil, for 3 months. Provisions are calculated for 60 days.

General Arrangement of the Ship



The stability of the ship corresponds with the requirements of the Rules of the USSR Register of Shipping for ships with an unrestricted area of navigation. During the transport of deck cargoes (containers), stability is obtained by taking on liquid ballast. The ship is fitted with a system for determining the initial stability in order to verify stability conditions during loading. There is a heeling system to correct a list during loading operations.

The ship's resistance to flooding has not been specified. For the information of the crew, a calculation will be made of the flooding of compartments with instructions regarding the conditions in which the ship has an impaired stability or resistance to sinking.

To improve directional control of the ship at slow speed, and for maneuvering with no headway, a 735 kW electrically driven thruster is installed.

The hull is fully welded and, basically, is built from flat and volumetric sections in accordance with a technology adopted at the shipyard. The hull is made of 09G2 low-alloy steel of increased strength, and it has bulbs at the bow and stern. The stem and the bow bulb are of welded construction except for a casting at the load waterline. The stern frame and rudder bracket are welded.

The double bottom extends from the forepeak to the afterpeak bulkheads. Basically, the double bottom is longitudinally framed. Under the points of support of the stacks of containers there are bottom stringers and transverse stiffeners. In the areas of the fastening seats for containers there are reinforcing doubler plates on the tank top. Along the centerline of the double bottom under holds No. 4,3 and part of 2 on both sides of the vertical keel there is a double piping tunnel with a width of 2X1.4 meters. In way of holds No. 2,3, and 4 there are double sides in the upper part of which, under the main deck, there are under-deck side passages. The ballast tanks are in the lower part of the double sides.

Seven transverse bulkheads divide the hull into watertight compartments. To provide transverse strength, there are box structures situated on the tank top and under the main deck in the middle of the length of holds No. 2,3, and 4. They also are used as supports for the container guiding stanchions. There is a deep tank between holds No. 3 and 4.

The main deck from the forecastle bulkhead to the machinery space bulkhead is reinforced by longitudinal frames consisting of box girders along the sides and along the centerline between cargo hatches. In way of the cargo holds, the second deck has only side segments. The four upper levels of the superstructure are separated from the engineroom casing and the stack.

On the forward part of the forecastle, on the main deck in way of the recesses for the accommodation ladders, and on the wings of the bridge, bulwarks are provided. Forward of hatch No. 1 a 4-meter high wave breaker is provided to protect on-deck containers from waves. Signal masts are installed on the forward part of the forecastle deck and on the upper bridge. All standard and

spare signal and side lamps are electrical. On the forecastle deck by the hatch into the boatswain's storeroom there is a 200 kg capacity davit for loading supplies.

Two and a half ton capacity electric davits are installed on both sides and on the after part of the boat deck for Suez canal mooring boats.

There is a 1.5-ton capacity electric carriage hoist with an overside outreach of 2.5 meters to service the machinery space and to load provisions onto the ship. It can also be used for lowering the workboat and the work float.

Between the decks of the platform and the superstructure there is a passenger lift for 3 persons with a 240 kg capacity. There is a 150 kg lift to transfer provisions from the provision lockers to the galley. There is also an electric lift for pilots.

The ship has two regular anchors and a spare of the Gruzon type each weighing 6,450 kg. Combined anchor and automatic mooring winches are installed on the forecastle. For them, in the pilot house, there are indicators of the length of anchor chain paid out and a remote control for the brake band providing for automatic maintenance of a constant speed in paying out anchor chain.

The mooring gear provides for navigating the ship along the Suez and Panama canals. For mooring operations there are seven automatic winches (four on the forecastle deck and three on the poop deck), other mooring equipment and mooring lines (steel lines with polypropylene end sections and completely polypropylene lines).

Two closed-type lifeboats, each with 50 person capacity and with an air cooled diesel giving a speed of 4 knots, are situated on both sides of the boat deck of the superstructure. There are gravity-type davits with electric drives for lowering and lifting the lifeboats. On each side of the boat deck there also are two life rafts, each with a 12 person capacity. It is possible to transfer the rafts from one side to the other. There are also: a 6 person inflatable life raft on the forecastle deck, a fiberglass motor workboat, and a work float.

The steering gear consists of a suspended streamlined rudder of welded construction and a two-cylinder electrohydraulic steering engine. Provision has been made for controlling the ship during any single failure of any element of the steering gear in accordance with the recommendations of the IMO [Intergovernmental Maritime Consultative Organization].

Closure of the cargo holds is accomplished by means of pontoon-type hatch covers which are moved by the container grasping devices, and the covers are secured manually by means of hatch dogs. Fittings for securing containers are installed on the hatch covers. Special structures with moveable platforms are provided for access to the upper tiers of containers in the holds and on deck. The cargo holds have forced supply and natural exhaust ventilation.

Piping for the ballast and drainage systems is laid in the tunnels in the double bottom and the valves and pumps of these systems are controlled remotely from the TsPU [Central Control Station]. Installed in the drainage system is a bilge water separator having a filter which, during an output of 5 m<sup>3</sup>, cleans oil-contaminated water to an oil content of no more than 15 mg/l. Automatic stoppage is provided for a discharge of water containing excessive oil. There is steam heating for the ballast tanks and for fresh water tanks above the water line.

Waste water is collected in a tank equipped with chlorinating gear. An installation which corresponds with the recommendations of the IMO is provided for processing sewage. There is an incinerator for burning garbage and sludge. For fire fighting there are water, CO<sub>2</sub>, and foam extinguishing systems.

The ship's main engine is a 9DKRN 80/160-4 diesel built by the Bryansk Machine Building Plant under license from the Burmeister and Wein company. This is a two-cycle, direct-acting, reversible, marine diesel with straight-thru scavenging and gas turbine supercharging. The engine is directly connected to the propeller shaft. The rated power of the engine in prolonged operation is 15,822 kW (21,600 hp) at 122 rpm. The engine can be operated on fuel having a viscosity of up to 3500 seconds Redwood at 100°F.

In trial conditions at the designed draft of 9.02 m, with main engine power of 14,294 kW (19,440 hp) which is 90 percent of the prolonged operating power, and at 122 rpm, the speed of the ship will be about 21 knots. The propeller was designed to these conditions. The propeller is made by unit casting of a special manganese multicomponent bronze - "Kumanal". The stern tube is of welded steel with steel bushings filled with white metal and with oil lubrication.

Four diesel generators produced in the GDR are installed on the ship. The type 8V D26/20 AL-2 auxiliary engines each have a power of 880 kW (1,200 hp). There is an emergency diesel generator with a type 4V D21/15 engine having a power of 100 kW (137 hp) with automatic startup.

In cruising condition the electric power demand is provided for by two diesel generators. In the maneuvering condition with operation of the thruster, air conditioning, hold ventilation, and supplying refrigerated containers, all four diesel generators are required. At anchor two diesel generators suffice. The start-up of the auxiliary diesels is automatic or remote from the TsPU or by hand directly at the engines.

The means of automation provide for remote control of the machinery from the bridge in all necessary conditions and without a watch in the machinery space. They also provide for around-the-clock control from the TsPU by one watch engineer when under way, and watchless maintenance of the machinery, devices and systems in the TsPU and the machinery space at anchor and during loading and unloading operations.

The boiler plant consists of a 4-ton/hr auxiliary boiler. It is an oil fired water tube boiler and satisfies shipboard requirements during maneuvering and at anchor during outside temperatures down to -25 C. Under way, loaded or in ballast, steam demands are met by a waste heat boiler working off the main engine exhaust gases. The productivity of this boiler is 4.2 t/hr. The parallel operation of the auxiliary and waste heat boilers has been provided for.

On the ship there are two main air compressors each delivering 300 m<sup>3</sup>/hr, an auxiliary compressor delivering 63 m<sup>3</sup>/hr and a ship's service air compressor delivering 160 m<sup>3</sup>/hr. Four type MARKh-309 fuel separators have a productivity of 5,000 l/hr. In addition, two lubricating oil separators of the same type are installed.

In the machinery space there is a machine shop with turning, vertical drilling, horizontal milling, and grinding tools and other necessary equipment. There also is an electrical shop, and a compartment for testing injectors. On the boat deck there is a welding shop with a stationary electric welding generator.

For servicing the main engine there is a bridge crane with an electric hoist carriage having a capacity of 6.3 tons. The central control station is sound insulated and equipped with air conditioning.

The ship's radio shack is fitted with the latest radio equipment, mainly of Soviet manufacture. Also provided is a printing apparatus, a phototelegraph apparatus for receiving weather maps, and the necessary complement of emergency radio equipment and radiotelephone installations.

The radio and electronic navigation apparatus includes a radar station with a situation indicator, an automatic system for the safe separation of ships, a duplicate system of gyro compasses, receiver-indicators for radio navigation systems, a satellite receiver-indicator, a hydroacoustic log with an indicator of the angular velocity of the ship, and all other necessary radio and electronic navigating instruments.

For internal shipboard communications and information there is a sound-powered service telephone system, an automatic telephone station, and a radio broadcasting and an address system.

All cabins on the ship have individual sanitary facilities. Two of them have baths and the remainder, showers. Six cabins consisting of a study, berthing, and a sanitary unit are provided for the senior command staff. There are ten single cabins for the remainder of the officer staff, and twenty single cabins for the crew. In addition, there is a double cabin and two three-berth cabins for passengers, two double cabins for trainees, and a single cabin for a pilot. The ship also is equipped with a gymnasium, swimming pool, photolab, and a hobby shop. For the needs of the crew there is a television receiving system with viewing stations in several of the living and public compartments.

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## MARITIME AND RIVER FLEETS

### SPECIFICATIONS, APPLICATIONS OF KILIYA-BUILT LIGHTERS

Moscow MORSKOY FLOT in Russian No 7, Jul 83 p 44

[Article by B. Levi, chief designer of the Black Sea Central Planning and Design Bureau: "Lighters and Lighter Carrier Systems"]

[Text] In recent years on the ways of the Kiliya shipyard, more than 200 lighters for the system "Dunay-more" ["Danube-Sea"] have been built with an accumulated cargo-carrying capacity of more than 200,000 tons. They are the very largest single-hold, shipboard barges of those built in various countries. The lighter's length is 38.2 m, width - 11 m, and height of side - 3.9 m with a cargo carrying capacity of 1085 tons. The dimensions were chosen based on the unification of a fleet being built by countries along the Danube and also taking into account the shipping limitations of the basin.

In accordance with the requirements of the clients, the box-like shape of the barge has a sharpening in the bow. Its parameters were chosen on the basis of model tests conducted in the test basin of the OIIMF [Odessa Institute of Engineers of the Maritime Fleet]. In this, the objective was to obtain the maximum carrying capacity for the system; that is, to obtain a variant of the sharpened shape of the hull which would give, in frequently used trains of the barges with fixed draft and with a fixed towboat power, the greatest magnitude for the product: useful cargo carrying capacity of the barge train times its speed.

Besides the uplift of the bottom in the sharpened section, a narrowing of the hull by 0.8 m from each side was provided which made for easier entry of a train into lock gateways.

The lighter system "Danube-Sea" was built to USSR Register of Shipping Classification K\*L4PSP allowing for its use not only on internal waterways but also under tow at sea. The reinforcement for ice permits use of these barges in freezing southern seas. Inasmuch as the requirements of the classification societies for lighters, which are relatively new floating equipment, had not yet received thorough reflection in the operative rules, the basic structural elements of the lighter were determined by calculation based on the features of their work.

The first lighter went through a set of strength tests including verification of the rigidity of the hull (which has an extremely large deck opening) and imitation of the pressures which the bottom of the lighter experiences when loaded onto the keel blocks of the lighter carrier. The stresses in the structural members of the lighter caused by general bending under uneven loading conditions were measured as was the drawing together of the sides caused by water pressure, and so on.

Ordinary carbon shipbuilding steel is used in building the lighters. In way of the straight-sided cargo holds, the bottom and sides are made double. The framing system is transverse. A feature of the structure of the lighters is the small height of the double bottom (0.42 m) as compared with a height of 0.8 m. This increases the useful space in the hold by almost 10 percent.

The bow and stern transoms of the hull in places of contact with the push bars of towboats are provided with reinforcements designed for concentrated forces of up to 50 tons. This corresponds to the force of powerful towboats which prospectively can appear on the Danube.

The lighter's anchor gear consists of a Hall anchor weighing 900 kg, 100 meters of 28 mm chain, and an electric capstan with a pulling force of 2,350 kg. The hatch closure, of domestic manufacture, consists of seven watertight covers each weighing 5 tons. Their installation by an on-shore crane and tightening down with screw-type hatch dogs takes a little more than 1 hour. The relatively large weight of the watertight closure of the hold (35 tons) is explained by its substantial area (280 m<sup>2</sup>) and also by the requirements of the Rules of the USSR Register for the strength and rigidity of hatch covers on ships operating at sea and fitted for carrying containers.

For securing cargoes, the hold is equipped with two rows of eyebolts on the inner sides on the lower parts and at a height of 1800 mm. The lower row of eyebolts are spaced 2.5-3 m apart and designed for a working load of 6.3 t. The upper row are disposed at somewhat larger distances and are designed for 3.2 t loading.

With an accumulation of experience in the construction and operation of the lighters for the concrete conditions of the use of the lighter carrier system on haulages from Danube countries into ports in India and Indochina, a survey has been made of the original design decisions, and subassemblies in which some deficiencies were found have been reworked.

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## MARITIME AND RIVER FLEETS

### HISTORY, CURRENT STATUS OF SOVIET-BULGARIAN SHIPPING

Moscow MORSKOY FLOT in Russian No 7, Jul 83 pp 20-21

[Article by P Yelisseyev, deputy chief of the department of dry cargo transport of the Main Administration for Transportation and Fleet Operations: "The Route of Friendship" with the subtitle: "Commemorating the 20th Anniversary of the founding of the USSR - People's Republic of Bulgaria Shipping Line".]

[Text] As soon as the shipping channels in the mine fields that surrounded the ports of Varna and Burgas were cleared by Soviet minesweepers, Soviet merchant ships were sent into Bulgaria with cargoes for the friendly country which were badly needed for the restoration and development of the national economy after the second world war.

Since that time the haulage of cargoes between the USSR and the NRB [People's Republic of Bulgaria] has been developed and modernized.

Bulgaria receives from the USSR raw materials needed for its industry, energy materials, equipment, and machinery while delivering in return agricultural products, farm machinery, and other goods enjoying demand in the USSR.

Cargo haulage between the USSR and the NRB is accomplished in maritime transport (by the tramp fleet of the USSR and the NRB and by the ships of the joint regular shipping line), in direct railroad and rail-ferry transport, and in river transport between the Soviet and Bulgarian ports on the Danube (by USSR and NRB ships including the joint use of towboats of the Soviet-Bulgarian transportation association "Dunaytrans").

Of all cargo hauled in water transport, about 70 percent is in maritime transport.

On June 12th 1963 the first protocol on the creation of a joint shipping line was signed by the Black Sea Steamship Company and the Steamship Company of the Bulgarian Maritime Fleet. This document was an expression of the striving of both sides toward close cooperation and toward coordination and integration of maritime transport operations.

Since then, the agreement on the joint line has repeatedly been reexamined taking into account changes in actual conditions for operating ships on this route, the structure of the flow of freight, and the methods of transshipment.

All fundamental problems about improving the operations of the shipping line are decided at annual meetings of representatives of the shipowners and foreign trade organizations of the USSR and the NRB.

This year, the meeting was dedicated to the 20th anniversary of the founding of the line.

At present modern ships operate on the line including container ships and ships for packaged cargoes. The transport of cargoes from "door to door" in large-tonnage containers is being developed, and the placing of cargoes in packaged form on disposable or multiple-use pallets is being introduced.

In 1978, between the transportation ministries of the USSR and the NRB, an agreement on the haulage of cargoes in containers in international railroad and water transport was concluded, and rules for regulating this haulage were developed.

In May 1981 a program was agreed and approved for the development of the haulage of containerized, packaged, and palletized cargoes between the USSR and the NRB in the period 1981-1985. In accordance with this program, in 1985 a haulage of 375,000 tons in containers is anticipated.

Guided by the principles of a comprehensive program for deepening and expanding collaboration in the development of socialist economic structure in the field of water transport, in 1976 the USSR Ministry of the Maritime Fleet and the NRB Ministry of Transportation signed an agreement to create the Soviet-Bulgarian association "Dunaytrans". Its chief purpose is improvement of the utilization of the river fleet and Danube ports of the USSR and the NRB in the haulage of foreign trade cargoes between the ports of the two countries. The guiding body of the association is the Council of "Dunaytrans".

For the purpose of further improving and expanding transportation communications between the USSR and the NRB, for a more efficient distribution of haulage among the different kinds of transportation, and, first of all, to curtail the flow of freight on overloaded railroad transport passing through Romanian territory, in 1976 an intergovernmental agreement was signed for organizing railroad-ferry transport between Il'ichevsk and Varna.

In November 1978 the international railroad-ferry crossing from Il'ichevsk to Varna was placed in service. Four railcar ferries (two from each side), each with a capacity of 108 four-wheeled Soviet rail cars are in service.

All conditions for a rapid mastery of the complex technical facility were created through the efforts of the two countries. The amount of haulage on the ferry line is growing steadily and practically without supplementary capital expenditures. While in 1979, 1999 thousand tons were hauled by the ferries, in 1982 the haulage reached 3 million tons.

On the basis of experience in operating the ferry facility, a series of standardizing documents were developed and approved which were directed toward further improvement of the ferrying activities. Studies are being conducted on using computers for recording and analyzing cargo haulage, for monitoring the completions of cargo processing by the shoreside ferry complexes, and for analysis of the production and financial indicators of the operations of the ferry ships. A comprehensive international socialist competition of the Soviet and Bulgarian collectives was organized and is being carried out successfully assuring the work of the ferry crossing, and an exchange of experience is taking place.

The council of directors which is made up of representatives of the Black Sea Steamship Company, the Odessa Railroad, the All-Union Association "Soyuzvneshttrans", the Steamship Company of the Bulgarian Maritime Fleet, and the Varna Railroad, regularly sums up the results of the operations of the ferry crossing, works out practices providing for agreed volumes of haulage, and approves rate-setting documents.

For solution of the principal questions on increasing the efficiency of the crossing operations, planning and design and scientific research organizations of the USSR and the NRB transportation ministries are being brought in. Ways have been outlined for the technical, informational, and organizational provisions of a plan for operating the ferry line and for developing an ASU "Parom" [Automated Control "Ferry" System]. Joint Soviet and Bulgarian scientific and technical studies are being conducted on the further development of railroad and ferry communications between maritime and Danube ports of the USSR and the NRB.

Water transport occupies an important place in the realization of external economic relations between Bulgaria and the Soviet Union. Questions about its activity and development are under the constant scrutiny of the party and government bodies of the two countries.

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# MARITIME AND RIVER FLEETS

## BREAKDOWN OF USSR MERCHANT FLEETS AS OF 1 JANUARY 1983

Moscow MORSKOY FLOT in Russian No 5, May 83 p 35

[Text] The USSR Registry reports information on the USSR maritime fleet, with breakdown of the fleet by ministries and departments as of 1 January 1983.

(1) Наименование судов	(2) МАМФ			(6) МРХ			(10) Промысел			(14) Итого		
	(3) Кол-во судов	(4) Вместо- мощь, рег. т	(5) Добыча, т	(7) Кол-во судов	(8) Вместо- мощь, рег. т	(9) Добыча, т	(11) Кол-во судов	(12) Вместо- мощь, рег. т	(13) Добыча, т	(15) Кол-во судов	(16) Вместо- мощь, рег. т	(17) Добыча, т
(18) Пассажирские и грузопассажирские в том числе:	188	618 382	177 234	10	6 470	5 525	63	2 318	3 645	261	648 238	186 404
(19) Паромы	46	198 605	59 694	—	—	—	—	—	—	46	198 605	59 694
(20) Сухотрунные в том числе:	1493	8 494 101	11 555 262	556	1 541 380	1 516 785	264	459 147	552 116	2313	10 494 628	13 624 163
(21) Танкеры	370	1 451 218	2 032 668	—	—	—	2	9 628	13 540	372	1 460 846	2 046 228
(22) Контейнеровозы	45	383 554	386 500	—	—	—	—	—	—	45	383 554	386 500
(23) Роверы	51	346 494	462 022	—	—	—	—	—	—	51	346 494	462 022
(24) Наливные в том числе:	327	4 545 969	7 010 318	109	239 842	297 674	6	44 213	63 285	442	4 850 024	7 371 277
(25) Нефтеналивные	299	4 342 556	6 764 834	91	209 647	262 546	4	40 830	59 965	394	4 593 033	7 087 345
(26) Газовозы	11	186 625	201 398	—	—	—	—	—	—	11	186 625	201 398
(27) Лимбовозы	3	9 345	9 960	—	—	—	—	—	—	3	9 345	9 960
(28) Комбинированные	10	625 143	1 085 952	—	—	—	25	67 475	71 350	35	692 618	1 157 302
(29) Рыболовные	—	—	—	2577	3 360 699	1 878 113	6	3 727	1 764	2 583	3 364 426	1 879 877
(30) Специального назначения	56	202 670	134 835	211	1 554 908	1 207 719	157	194 355	89 383	424	1 951 933	1 431 937
(31) Технические	203	178 824	139 901	30	18 377	9 530	176	196 807	122 533	409	394 008	271 964
(32) Служебно-вспомогательные в том числе:	490	443 028	318 507	337	138 135	93 060	183	71 718	38 084	1 010	652 881	449 651
(33) Буксиры	279	89 386	34 461	207	84 525	36 841	111	43 233	17 732	597	217 144	89 034
(34) Ледоколы	34	219 962	99 377	—	—	—	—	—	—	34	219 962	99 377
(35) Итого	2767	15 128 317	20 422 009	3 830	6 859 811	5 008 406	880	1 060 628	942 160	7 477	23 048 756	26 372 575

[Key on following page]

Key:

1. Ship type
2. Ministry of the Maritime Fleet [MMF]
3. Number of vessels
4. Gross register tonnage
5. Deadweight tonnage
6. Ministry of the Fish Industry [MRKh]
7. Number of vessels
8. Gross register tonnage
9. Deadweight tonnage
10. Other
11. Number of vessels
12. Gross register tonnage
13. Deadweight tonnage
14. Altogether
15. Number of vessels
16. Gross register tonnage
17. Deadweight tonnage
18. Passenger and cargo and passenger vessels, including:
19. ferries
20. Dry cargo vessels, including:
21. timber transport vessels
22. containerships
23. ro-ro vessels
24. Tankers, including:
25. oil tankers
26. gas carriers
27. chemical carriers
28. Combined vessels
29. Fishing vessels
30. Special purpose vessels
31. Technical vessels
32. Auxiliary service vessels, including:
33. tugboats
34. icebreakers
35. Total

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## MARITIME AND RIVER FLEETS

### BREAKDOWN OF USSR MARITIME FLEET BY PROPULSION SYSTEM

Leningrad SUDOSTROYENIYE in Russian No 7, Jul 83 p 39

[Table 2 from a brief article which gives the size and distribution of the USSR maritime fleet as of 1 January 1983; other information provided in this article (and not included here) duplicates data given elsewhere in this report under the headline "Breakdown of USSR Merchant Fleets as of 1 January 1983"]

[Text] Table 2: Breakdown of the [USSR Maritime] Fleet by Propulsion System

<u>Type of Propulsion</u>	<u>Number of Vessels</u>	<u>Gross Registered Tonnage</u>	<u>Deadweight Tonnage</u>
Diesel	6648	19,338,694	22,092,524
Steam turbine	72	1,876,564	2,879,023
Diesel electric	577	1,366,979	948,004
Steam reciprocating	165	327,189	323,063
Gas turbine	11	82,128	116,105
Nuclear	3	49,708	11,393
Steam turbo electric	1	7,494	2,463

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## PORTS AND TRANSSHIPMENT CENTERS

### DESPITE OPPOSITION, ODESSA PORT TO BE UPGRADED

Moscow SOTSITALISTICHESKAYA INDUSTRIYA in Russian 18 Feb 83 p 2

[Article by A. Fomin, deputy chief of the Order of Lenin Odessa Seaport and candidate of technical sciences: "The Port Strides Into the Sea"]

[Text] The Odessa seaport will soon mark its 200th anniversary. One must say that it is indeed of honorable age. During this period, the city and its operating enterprises came close to the port, crowded it from all sides. It seemed that prospects for developing the port were exhausted. The docks, hydraulic engineering structures, warehouse areas and railway lines cannot be expanded.

Some specialists even expressed this thought: should not the "veteran" be completely converted to a passenger port, and cargos turned over to neighboring, the new ports--Ilichevsk, Belgorod-Dnestrovsk and the gigantic Yuzhnyy port, which is under construction.

But port workers of Odessa decided otherwise. Arming themselves with accurate engineering calculations, they proved that the port still has prospects. They started looking for reserves not only in expansion of production areas but also in raising their returns. A course was taken not toward liquidation of "bottlenecks," but toward radical technical reequipping and improving work methods in the port.

Two docks are being modernized in the first cargo region, work has been fully completed on one of them. These docks will be the deepest deepwater docks in the Black Sea basin. Rear support is also being developed--an additional storage area paved with concrete slabs, which was won back from the sea, is being built. These 60,000 m<sup>3</sup> are of great help.

Great changes were made at the seventh dock. It was reequipped, new crane tracks were laid here and power supply columns for latest grain transshipment machinery were installed. Large-capacity vessels can be processed and 210 cars can be loaded here in any weather.

We are devoting special attention to accelerating the processing of transportation means. Labor productivity in this work will sharply increase after mod-

ernization is completed of the specialized dock's conveyor near the port elevator. The results of modernization are already evident. During the past 6 months, 1 million tons of food cargo was processed here for the first time.

An important contribution is made by process engineers. By improving interaction of subcontractors working according to the "vessel side-railway car" scheme, the plan indicators for cargo processing by the direct variant increased considerably --by 14 percent--and the level of full mechanization was raised. The methods of processing transportation means were improved and the increased static load made it possible to release 6,400 cars.

A seaport is a complex facility. It is already impossible to manage it without modern computers. An increasing number of practical tasks are being included for solving by the automated control system complex. Not long ago the primary accounting of cargo and preparing of vessel documents was done manually. It was a real paper mill. Many thousands of pages had to be compared, printed and translated into foreign languages. Moreover, as a rule, this happened during the "peak" time when a vessel was practically ready to sail. Such routine operations are being performed now by an electronic computer--rapidly, accurately and reliably.

One of the main concerns of our port workers is ensuring a "green light" to cargos linked to fulfilling the Food Program. For the first time in domestic practice a complex was created for mechanized loading of refrigerator cars with meat, butter and citrus products. Its introduction has sharply reduced labor intensiveness of loading operations and speeded up work.

It is known that combining efforts of subcontractors gives not only simple addition but multiplication of end results. A striking example of this is the work experience of the "Cherkasskoye Production Association 'Azot'-Odessa port" industrial and transportation complex. A system of packaged delivery of some chemicals was organized within the framework of this complex. More than 30,000 tons of carbamide was delivered in this manner during 1 year. Introduction of this innovation has raised labor productivity of dockers-machine operators almost 1.5-fold. Labor input was reduced by 30,000 man-hours and a considerable number of cars were released.

All of these organizational and technical measures made it possible to achieve high results. Besides industrial cargos, more than 7 million tons of food cargos were processed last year. Despite this huge cargo flow, nearly 5 million passengers were transported on cruise and local routes.

Of course, new equipment and modern technology have played their role. Nevertheless, success of the work was determined by people to a great extent. First of all by those who are mastering leading procedures and methods of work and are working to full effect. As, for example, the collective of the financially self-supporting consolidated complex brigade of dockers-machine operators headed by UkSSR state prize winner Nikolay Alekseyevich Tumyn. His brigade fulfilled the program for 3 years of the five-year plan ahead of schedule back in December 1982 and established 24 labor records on the scale of the port. The dockers have to their credit more than 200,000 tons of export-import cargo and 1,368 above-plan railway cars.

Many more similar collectives can be named. Among the pacemakers, winners of the labor watch in January are consolidated complex brigades of dockers-machine operators headed by V. Zimoglyad, A. Gutsola and N. Grigorenko.

Port workers have laid a solid foundation for raising the efficiency of cargo operations. Economic problems are being solved along with social ones. Work is being intensified in training and retaining personnel. An educational and instructional course combine, which trains specialists for the port, was put into operation. Housing construction is underway.

The first stage of a post to regulate the movement of vessels in the Odessa Bay will be put into operation this year. It will be equipped with latest navigational equipment and automatics. Vessels will be able to enter the port and anchor in any weather without piloting. The Odessa seaport is gaining its second youth.

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## PORTS AND TRANSSHIPMENT CENTERS

### CURRENT ODESSA PORT IMPROVEMENT PROJECTS

Moscow VODNYI TRANSPORT in Russian 22 Mar 83 p 2

[Article by staff correspondent D. Romanov: "The Logic of Modernization"]

[Text] VODNYI TRANSPORT staff correspondent for the Black Sea and Danube basins, Dmitriy Vasil'yevich Romanov, has begun his work in Odessa. We are publishing his first correspondence today.

The word "modernization" is perceived by us as something with a plus sign. Modernization really means replacing obsolete machines and structures, creating new capacities and raising work efficiency. But when the question concerns changes in such a complex facility as the Odessa commercial seaport, then the conclusion is forced upon one: its modernization is an urgent necessity and will make it possible to greatly increase the volume of cargo processing, reduce the layover of vessels and cars and utilize to the maximum the possibilities of equipment and advantages of modern labor organization.

Let us recall. Not long ago the Odessa port, which is one of the oldest on the Black Sea, was regarded as being almost without any prospects. There were reasons to assume that this was so. Crowded by the city, the port was unable to receive even an additional meter of area. How was it to grow? How was it to develop? Moreover, the docking line that was already too short was continually reduced for various reasons. All of this made it possible for some specialists to pass a judgement: investing money in the development of the port is not worth it.

And who knows how the events would have developed further if... But let us describe everything in proper order.

There is a photograph before me which was taken a little over 2 years ago. The second dock is on it. Although it is difficult, of course, to refer to this conglomeration of rocks, concrete slabs and twisted beams as a dock. Here also are photographs of first and third docks. They are almost the same. They have been in such a condition not a year nor 2 years, somehow people got used to it: the port, you see, is lacking in prospects, no money is given for it... Inertia of thought, being accustomed to the old, which was so accurately described by Comrade Yu. V. Andropov, general secretary of the CPSU Central Committee, at the November (1982) plenum, affected the port's entire activity.

And here justice must be done to Valentin Ivanovich Zolotarev, chief of the Odessa port. He, perhaps, was the first to disagree that the fate of the port was to quietly become a second rate one. Why not give a second life to the docks? This is first. Why not win back additional area from the sea? This is second.

One can go on listing reasons in favor of modernizing the Odessa port for a long time. The question regarding its future was submitted to a meeting of the port's party committee. Then a "brain center" was created, which included leading specialists who thoroughly worked on every idea, every specific proposal. The efficiently prepared technical documentation testified demonstratively: the Odessa commercial seaport has hardly exhausted its possibilities. After checking of all proposals by a commission of experts, the USSR Ministry of the Maritime Fleet allocated funds for modernization.

Together with Yuriy Stepanovich Semenovych, chief of the port's planning and economic department, we are standing on the second dock.

"Do you recognize it?" he asked. "Does it in any way remind you of that photograph?"

Of course, I did not recognize it: nothing reminds me of the chaos that reigned here just a short time ago. The second dock, which was put into operation in the latter part of last year, was essentially created anew. It will make it possible to process additionally 250,000-300,000 tons of cargo a year. It is easy to understand all those who persuaded, argued and sought to prove and now can graphically demonstrate the results of their labor.

For they are the best proof themselves. To create a project--its not even half of the work. The most important is to be able to fulfill everything that is referred to quite tediously as "organizational and technical measures" and behind which lies intricate and hard work, which often demands not only persistence and complete devotion of effort but certain initiative as well. Incidentally, port workers demonstrated it in full measure during modernization of the docks. Here is just one example: construction organizations in Odessa used to haul soil excavated from building foundation pits to a site some 35 km away from the city. This soil is now being used for filling work in the port. It is advantageous to all, both to builders and port workers.

"By conducting filling work in the area of the first, second and third docks," port chief V. I. Zolotarev said, "we can expand the port's area by 70,000 sq. m. I believe that what this means to us is quite clear."

No special explanations are really needed here. With the overall length of cargo docks totaling 3,600 m, the Odessa port area totals only 140,000 sq. m. For comparison: the length of docks in the Ilichevsk port is 5,000 m, but the area is 650,000 square meters.

Work on the third dock is in full swing. It should be commissioned this year. Commissioning of the first dock is planned for 1985, but based on the mood of

port workers it will be put into operation ahead of schedule. These three docks, which were regarded as "lost" at one time, will make it possible to process nearly 1 million tons of cargo in addition to the plan. Moreover, the depth near the docks will reach 13 m.

In general modernization has affected the entire Odessa port. Here is one more dock--the seventh. Formerly, 120 carloads of grain were processed here a day, and this was regarded as the limit. Two railway tracks were laid here now and new powerful equipment was installed. Two grain conveyors are capable of handling 600 tons of grain per hour. The 200 carloads per day that are leaving the seventh dock today hardly exhaust its possibilities.

Thus, it may be said with confidence that as if the Odessa port gained a second wind. But it would be at least unjust to credit it all to the technical aspect of work. Yes, of course, modernization of the docks, the additional areas that were obtained, modern equipment and so forth greatly promote improvement of work indicators. However, it is difficult to hope for solid success by relying on this alone.

Modernization--in a broad sense of the word--persistently and unavoidably demands breaking up of customary, settled relations between various services; other organization of labor and planning, in short everything that forms the capacious understanding of the production mechanism. Such reorganization, perhaps, is no less difficult and responsible than everything else. Did it succeed in the Odessa port?

"During the past few years," V. I. Zolotarev said, "we have conducted extensive work in specializing docks and establishing high-capacity transshipment complexes. We have operating transshipment complexes for unloading grain, raw sugar, refrigerated cargo and other cargo. Permanent consolidated complex brigades that are assigned to them already use work participation ratio in their work. Such specialization results in reduced layover time of vessels.

"Improvement in organization of labor and planning exerts great influence on raising efficiency in the port's activity. We are trying to attain close contact and mutual understanding between all port services and subcontractors and are providing in our schedules for prompt rearrangement and maneuvering of forces if unforeseen irregularities occur. Of course, we have much work ahead of us but the results are already evident now. Last year, gross intensity in fleet processing increased 1.6-fold and unproductive vessel layovers were reduced by 45.7 percent."

There is one more important indicator of work of the Odessa port: today, it can ensure much greater average daily cargo turnover. Bearing in mind that food cargos account for nearly 85 percent of the entire volume of cargo processing, this is a substantial contribution by port workers to the fulfillment of the Food Program.

However, it is unfortunate that it can be referred to as contribution only theoretically so far because the Odessa-Port station is unable to provide the necessary number of cars. This "discrepancy" is a perfectly natural result of the port's modernization... Although, how natural is it?

Problems in relations between subcontractors exist at many points of contact. The expression "reliable shoulder of a partner," which has already become a cliché, does not always reflect the real situation. Let us try and analyze what happens in our case.

No matter who I talked to, all noted unanimously: the subcontractors have already shifted long time ago from mutual recriminations and insults to close, mutually advantageous cooperation. Here is the opinion of Galina Fedorovna Ryzhkova, chief engineer of the Odessa-Port station:

"We solve all questions collectively, try to help each other in everything. Docker-machine operator brigades are rendering us great assistance in repairing cars."

"We have businesslike relations, well-organized information. The station strives to fulfill our orders in strict accordance with the schedule," said Yuriy Aleksandrovich Shekhovtsov, deputy chief of the Odessa port for railway operations.

It remains to be added to the abovementioned expressions that the coordinating council of the Odessa transportation center meets regularly. A joint party and economic aktiv of subcontractors was held in February this year at which important questions of joint work were discussed.

The fact that port workers and railwaymen have achieved much is evidenced by the following figures. Last year, the average car layover time under cargo operations was reduced by 16 minutes against the norm, which means that hundreds of cars were released for hauling. However, there is also other data. The idle time of the fleet while waiting for cars was increased by 46 percent in 1982, which is much more than was in 1981.

There is an easily traced trend that every year the station's possibilities are lagging behind those of the port. There are objective reasons for this. Far from all problems can be solved by adopting joint decisions, improving skills of workers, mutual assistance and so forth. The Odessa-Port station is also in need of modernization.

For the sake of fairness it must be noted that the station is under very cramped conditions, being locked between the city and the port. It does not even have a low hump marshalling yard for marshalling trains--all shunting is done by pushing. Marshalling of cars to the docks is conducted via a single running track and there is no electric interlocking of switches and signals... Therefore, despite all efforts failures are practically unavoidable.

"For today," Yu. A. Shekhovtsov said looking at the schedules, "we ordered 618 cars. But we know in advance that we will not get them, the station is simply unable to provide such a number."

It is true that work is conducted at the station: new tracks are being laid, another weighing machine was installed and the track at the port elevator was extended.

"This year," G. F. Ryzhkova said, "it is planned to construct a structure for the electric interlocking post. There are also plans for electrification of the station and reorganization of the station park."

It is hoped that the railwaymen will be able to fulfill everything that is planned. But here what puts one on guard: the order of the chief of the Odessa railway on modernizing the station was signed in 1980 simultaneously with the order of the chief of the Black Sea Steamship Company on modernizing the port. However, these orders were implemented in a different way...

Possibilities of the Odessa port are now being artificially held back, which, naturally, cannot but affect all links of the transportation conveyor. Today, the need for coordinated activities of the Odessa transportation center has greatly increased--they alone will help in the most optimum manner to utilize the uncovered possibilities. Such is the logic of modernization.

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## PORTS AND TRANSSHIPMENT CENTERS

### PLANS FOR YUZHNY PORT ENLARGEMENTS, IMPROVEMENTS

Moscow VODNY TRANSPORT in Russian 1 Mar 83 p 4

[Article by special staff correspondents G. Daygorodov and V. Kasapov in the column "At Five-Year Plan Construction Projects": "The Northern Companion of Odessa"]

[Text] In the main building lobby of the Black Sea Planning, Design and Scientific Research Institute [Chernomorniiprojekt] the visitors can see a large multicolor stand and the words "Yuzhny Commercial Seaport" inscribed on it and with the water area, docking and other coastal facilities being depicted as they will be in the near future. Today, this is the main project and pride of specialists of the Odessa Affiliate of the State Planning, Design and Scientific Research Institute of Maritime Transportation [Soyuzmorniiprojekt], according to whose plan and under whose observation the new harbor is being constructed in the northwestern part of the Black Sea.

More than 570 hectares of suitable water area of the Malyy Adzhalykyskiy or Grigoryevskiy Estuary and nearly 1,400 hectares of coastal area set aside around it make construction of a modern deepwater port here possible with prospects for long-term development. A new industrial and, at the same time, a transportation enterprise--the Odesskiy port plant with docking facilities and specialized automatic complexes for receiving and shipping chemical cargos (superphosphoric acid, liquid ammonia, methanol and carbamide)--was commissioned about 5 years ago on the west bank of the estuary, which was transformed into a gulf-bay by linking it to the sea. Later, an ammonia pipeline was laid here from Volga. The foundations of the new port--in essence a port-plant--were laid in this manner. Construction of docks and coastal facilities of a large-scale basic port region for bulk cargo is now underway on the opposite, eastern coast of the gulf-estuary.

In perspective, another region for chemical bulk cargo will also arise here in the years immediately ahead. As a whole this large-scale complex was consolidated and received its new name--Yuzhny Commerical Seaport. Like the Vostochnyy port which is growing on the other end of the country, it will one of the largest ones in the Soviet Union as regards cargo turnover.

Yuzhny is operating. Yuzhny is under construction, Yuzhny is being planned. This is the feature of this gigantic construction project.

## The Port Is Being Planned...

Room No 26 in the main building of the Black Sea Planning, Design and Scientific Research Institute. The design staff which is creating the new port is here. R. Yegorov and M. Lanin, chief engineers of the plan for the ore and coal complex, and L. Gusev, chief engineer of the plan for the imported phosphorite transshipment complex are working here.

"The planned chemical bulk cargo region," Leonid Mikhaylovich Gusev said, "considering the large volume of work, will have to be constructed in the shortest possible time." It will also play a role in implementing the Food Program. Blueprints, estimates and all other necessary documentation are delivered within the shortest possible periods. The region with two transshipment complexes is intended for transshipping (receiving, storing and shipping) 1.2 million tons a year (up to 6 million tons in long-term) of phosphorites--raw material for production of mineral fertilizer--and up to 2 million tons of lump sulfur.

The overall docking line of the planned complexes will total 840 m.

## ...Being Constructed

With R. Yegorov, one of the architects of the ore and coal complex, and B. Osadchiy, supervisor of the Construction Design Inspection group, we made a tour of the future port's area. Much work is being done here simultaneously: dredging the water area, forming the territory, constructing docking and coastal facilities and approach tracks and laying engineering networks and service lines.

The embankment for the railway branch line leads to the rear of the Rudnaya port shunting yard, where walls of two buildings have already been erected.

A car dumper complex is growing in the large foundation pit on the upper site of the future ore and coal complex; the foundation was laid and fittings of the upper structure are being joined. Six cars with ore or coal will be able to unload here simultaneously.

"Via a system of conveyor galleries, the cargo will be conveyed from here to piles in the warehouse or directly to the dock and into the holds of coal and ore carriers," Rostislav Aleksandrovich Yegorov explained.

Two deepwater docks with an overall length of nearly 700 m which are under construction, highly productive specialized loading and unloading installations and other complexes will make it possible to handle up to 5.5 million tons of ore and coal a year. The tonnage of vessels and cargo turnover will increase as the docks are being developed and dredging is done to 19 m.

A huge smokestack rises above here at the upper site and assembly of boilers and other installations of the port's future district heating station is underway in a completed structure. A gas pipeline is being laid here. Reserve capacities for liquid fuel are being assembled.

A materials supply warehouses with an area of nearly 2,000 m<sup>3</sup> has already been commissioned and a 2-storey 155-place workers dining hall is in operation. Walls of a seven-storey port administration building and a five-storey amenities building for dockers are being erected...

But the main projects, of course, are the deepwater docks No 5 and No 6. Like the entire port as a whole, they are being constructed by the Black Sea Hydraulic Engineering Construction Trust [Chernomorgidrostroy]. Floating cranes, pile drivers and diving boats are positioned near the coast. An even palisade of pipes of the pile field, which is being assembled, rises at one of the sectors in an area which was won back from water, and at another sector--dock No 5--the assembly of the upper structure is already nearing completion. Working here is the complex brigade of assembly workers headed by Hero of Socialist Labor I. Paliya (the same one who drove the first piles during construction of docks of the Il'ichevskiy port and the Odesskiy port plant), a brigade of concrete layers headed by A. Lopushinskiy and a brigade of divers headed by V. Girnika.

The Odessa obkom devotes constant attention to construction of the Yuzhnyy port. Short meetings have been held here every Monday since the beginning of construction of the port plant with participation of designers, construction workers, supply workers and operational workers under the chairmanship of one of the obkom secretaries.

#### ...Operates

The port administration is temporarily located on the west coast, in the port plant's management building.

"In a few months," port chief L. Val'chuk said, "we will celebrate a small jubilee--the fifth anniversary of port operations. Since the beginning of the 11th Five-Year Plan, we have handled hundreds of thousands of liquid chemical cargos on three docks: superphosphoric acid, liquefied ammonia, methanol and carbamide. But construction has not yet been completed on this coast: a fourth dock is being built for nitrile-acrylic acid and methanol as well as a dock for scientific research vessels of the State Oceanography Institute [GOIN]. The expansion of the port plant is continuing."

At the same time, a well-planned Yuzhnyy city-type settlement of port and chemical workers with a trade and everyday services complex and a rest area--beaches, swimming pools and a stadium--is being built on the Black Sea coast, 6 km northeast from the port.

Together with the port, the port plant is also growing, and specialized tankers are anchored at its three docks. Cargo handling operations are completely automated. Chemicals from huge steel reservoirs are conveyed by pipelines to the dock and then by pipe devices to the tank fillers of vessels. The speed of loading, for example, of liquid ammonia is 2,000 tons per hour. The motor-ship "Julius Hammer" flying the U.S. flag has moored at the dock, it brought superphosphoric acid from a supplier--the Occidental Petroleum Corporation. "This was a normal voyage," vessel captain Robert Hossey stated. "I think that my patron Armand Hammer is conducting a mutually advantageous business."

...In the Long-Term

"Yuzhnyy is one of the major construction projects of the current and future five-year plans," said V. Taran, chief engineer of the Black Sea Planning, Design and Scientific Research Institute. One of the features of the port is the highly specialized nature of its transshipment complexes, which, incidentally, is characteristic of the entire development of its fleet.

One dock and some installations and auxiliary projects of the ore and coal region--the underway complex must be put into operation as early as in 1984.

Besides the priority work in constructing the new port, in connection with implementing the Food Program a question is being examined now on accelerating construction of another project--the grain complex.

In the long-term it is intended to construct container terminals, a region for the processing of the ro-ro fleet and general cargos and a region for transshipment of oil cargos. Construction of a ship repair plant with a dry dock for large-capacity vessels is envisaged.

It must be stressed that not only the oil region but all structures of the new port are planned and constructed with consideration of the most strict requirements of environmental protection.

After completion of construction, the Yuzhnyy port will become one of the deepest deepwater ports on the Black Sea. It will be able to handle vessels with a deadweight of up to 200,000 tons and ensure processing at its 48 docks nearly 60 million tons of cargo a year. The length of its docking line will total nearly 12 km. The port is being equipped with industrial television systems and latest computers, which are put into operation in the automatic control [ASU]-port system. Together with railway and motor access routes and the Rudnaya station, this will be a precisely balanced transportation center as regards carrying capacity of which there is no equal so far in practice. Its entire work will be based on the principle of a unified subsystem of a transportation conveyor.

For the present the general area of the port does not look like an ordinary sight: on one side of the gulf's water area there are clear outlines of buildings, docks, automated complexes and plant shops and of vessels anchored at the docks, on the opposite side there is a huge construction site with scattered heaps of earth and completed and not yet completed structures.

...The port operates. The port is being constructed. The port is being planned.

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## PORTS AND TRANSSHIPMENT CENTERS

### PROBLEMS PERSIST IN NOVO-TALLINN PORT PROJECT

Tallinn SOVETSKAYA ESTONIYA in Russian 9 Jun 83 p 2

[Article by A. Ponomarenko, director of the Novo-Tallinn commercial seaport, now under construction: "Making Plan Outlines More Precise"]

[Text] Recently a year passed since the start of construction on the Novo-Tallinn port. What has changed during this period? What problems did the builders manage to solve? What challenges stand before them now?

I remind you that it was precisely on this construction site that for the first time in the republic the method of parallel design was employed, where the working designs of each subsequent part of the project are prepared simultaneously with construction of the preceding part.

During the short time it took to prepare the site the volume of construction-installation work was overfulfilled by 1.5 times, which attests to the justified risk of the experiment undertaken. We are approaching a situation where at the moment of ratification of technical documentation preparatory work will be done and basic construction can be begun immediately, without hesitation and picking up speed.

The management of the port under construction has been set up, and for practical purposes the construction site has been provided with working documentation for the current year and 1984.

The outline of the territory of the future port is taking shape. Dikes have been poured; the access road has been laid; the dredge operations are being carried out and as a result 1.6 million cubic meters of earth has been dug up, more than 1 million cubic meters of sand has been deposited in territory taken back from the sea, construction of auxiliary docks has begun, a high-voltage power transmission line has been laid, and so forth.

However, evaluating the results of the work that has been done in comparison with the tasks and, most importantly, with the period of time in which they must be completed, those participating in the project realize that as yet very little has been done. In actuality, although the tempo is now increasing from month to month, in order to put the first phase of the port into operation in 1986 the tempo must be intensified. This was emphasized at the most recent meeting of the interdepartmental commission on coordinating construction of the Novo-Tallinn port.

The basic problem consists in inadequate capacities of the contracting organizations participating in port construction today. It would seem that there is a clear contradiction at hand--on the one hand overfulfillment of the construction-installation work plan, and on the other inadequate capacities of the builders. The explanation lies in the fact that the year's plan for contractors is not intensive; it was ratified in the beginning of the five-year plan on the basis of preliminary prognoses, and time, as is well-known, introduces its own corrections. And although the volume of capital investment in 1983 surpasses the last year's by more than six times and the volume of construction-installation work by 2.5 times, compared to the scale of work of the first phase these impressive figures amount to 15 and 4 percent respectively. This means that even the increased tempo is now inadequate.

The principal task continues to be building up an area of approximately two square kilometers and preparing conditions to begin to build the new port's transshipment complexes. To do this, more than 2.5 million cubic meters of earth, taken from the bottom of the bay, must be deposited, access rail lines for delivery of building materials must be built, and docks for receiving cargo and equipment must be built. And the site must be supplied with the necessary energy resources and fresh water. At the same time it is imperative to build housing for specialists and to solve a whole series of questions concerning residence, transportation, and cultural services for port workers, development of a base for contractors and management, preparation of a front of operations, and procurement of materials and equipment.

How do the client and the builders intend to deal with such a mass of concerns?

Planning organizations managed to achieve a high speed of performance. But distribution of design documentation, which did not take place within the generally accepted time period, upset provision of the construction site with necessary equipment and material-technical resources, despite the fact that in many areas the contractor and builders were given the "green light" by Gosplan services. And now there is every reason to suppose that even the authorized volume of work will not be performed unless extreme measures are taken to fill the project's procurement orders for necessary equipment.

In order to put the first phase of the port into operation at the appointed time, every year from 1984 on 50-60 million rubles of capital investment must be incorporated; consequently, emergency measures are needed to strengthen the contracting organizations of the USSR ministries of Transportation Construction and Construction since the shortage of workers, machinery, and especially motor vehicle transport at a general contractor such as the Construction Administration No 423 of the Baltmorgidrostroy Trust of the USSR Ministry of Transportation Construction does not allow us to perform the work with the proper intensity.

According to the estimate of ESSR Gosplan, the capacities of the construction organizations of the ESSR Ministry of Construction are also inadequate for conducting such a huge volume of work.

In fact, the ESSR Ministry of Construction (which is represented by two general contracting organizations, Mobile Mechanized Column No 36 and the Stroymekhanizatsiya Trust) is to perform construction-installation work in the amount of about 40 million rubles before the first phase of the port goes into operation, and to build more than 80,000 square meters of housing space, kindergartens, a school, a department store, and a number of municipal-domestic service facilities. In addition, 18 kilometers of water mains and 14 kilometers of heating lines must be laid, and sewage collectors and regional purification equipment with two-kilometer deep-water discharge into the Gulf of Finland must be built. The capacities of these organizations are such that they, it appears, should be charged with projects for the port under construction only. But in their production program there are also other republic projects no less important at this time and, most importantly, envisioned by the five-year plan. What is the solution?

Of course, besides the stated problems the builders must face many others, which concern various departments and organizations of the republic. For example, questions of supplying the construction site with local building materials and additional motor vehicle transport were touched on in the pages of SOVETSKAYA ESTONIYA (12 May of this year). Therefore, now more than ever before their benevolent attitude toward the project is valuable! It is gratifying that more and more mutual unstanding and readiness to facilitate quick solutions to such problems is being expressed.

It seems that the worker relay principle, already officially accepted at the republic's large construction sites, should help in this matter: "From mutual complaints to mutual assistance."

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## PORTS AND TRANSSHIPMENT CENTERS

### PROGRESS IN DEVELOPING DANUBE'S UST'-DUNAYSK PORT

Moscow VODNIY TRANSPORT in Russian 2 Jun 83 p 1

[Article by B. Ustimenko: "The Port at the Mouth of the Danube"]

[Text] "We are standing at the very place," says cranemaster Viktor Andreyevich Semenyuk, "where at the end of last year the first foreign ship came to the Ust'-Dunaysk Port--an ore carrier under the Japanese flag from which 30,000 tons of ore were unloaded. Then in turn came ships under the West German flag, the Liberian flag, the Greek flag, the Phillipine flag, and the Italian flag."

On the day of my arrival at the port 30,000 tons of bauxite was being unloaded from the Yugoslav ore carrier Belgrad. The port tugboats Pluton, Bogatyr', Zernograd, and Zaporozh'ye, whose crews are commanded by Captains S. Muratov, V. Shulgach, A. Tarasenko, and G. Ruskov, skillfully conducted the mooring operations and the port workers immediately began to unload the ore. The cargo traffic volume is growing and the port is growing stronger. In the third year of the five-year plan the port's collective pledged to process 1,750,000 tons of cargo. This is 250,000 tons more than last year. The port has earned the good reputation it has among foreign ship captains. The horizons of cooperation are expanding.

The port at the mouth of the Danube was built at the end of the last five-year plan. It was initially intended for processing lighter carriers. However, the voyages of the "Tibor Samueli" and the "Yulius Fuchik" to the east lasted approximately a month and port workers pondered on how to improve the efficiency of port work. So the decision was made to accept and process bulk carriers with displacements of 50,000-100,000 tons.

The Unan Avetisyan was the first bulk carrier to moor at Ust-Dunaysk's roadstead. The young port's collective performed the assigned tasks with honor. Unloading of the ore from the bulk carrier to the river barges and Volga-Balt class ships by the hold-to-hold system proceeded efficiently and ahead of scheduled times. Since May of 1980 bulk carriers from the Novorossiysk and Georgian steamship companies have become frequent visitors to Ust-Dunaysk.

A year later an experiment in unloading sulfur took place at the port. They prepared very carefully for the processing of this highly explosive cargo.

The port's chief production engineer visited Ventspils, where they have been specializing in processing sulfur for a long time and he familiarized himself with their work practices.

"We were careful to provide dock workers with reliable protective gear, including shoes with copper nails," says N. Basov, chairman of the port trade union committee. "We took every detail into account and this made it possible to unload the highly unstable cargo quickly and successfully. So sulfur, along with charge and ore, has taken its place in our general cargo traffic."

The trade union committee devoted particular attention to concluding contracts for competition between the port's collective and crews of the Soviet ships. This made it possible to process the bulk carriers efficiently and in an orderly manner and to jointly investigate and determine the optimum variations for unloading; and it eliminated mutual grievances while mutual assistance and a spirit of genuine comradeship developed instead.

Nevertheless, port workers understood that increasing the intensity of cargo processing and decreasing dock time was not possible with the equipment available, two 16-ton floating cranes. So the issue of additional technical equipping of the port arose. Two floating loaders from the Oysvag Company with output of 1,000 tons of loose cargo an hour were acquired. In November of last year both arrived at Ust-Dunaysk from Vienna. They are completely automated and use electronics extensively. Despite difficulties in incorporating new technology, crane and other operators, mechanics, and electricians learned quickly and well, and now they use the equipment competently.

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## PORTS AND TRANSSHIPMENT CENTERS

### VENTSPILS PORT WORKERS FACE TRANSSHIPPING PROBLEMS

Moscow VODNYI TRANSPORT in Russian 2 Jun 83 p 2

[Article by Yu. Paderov, chief of the Ventspils Port, under the rubric "The Economy Must Be Economical": "Questions Without Answers"]

[Text] Last year was a record-breaking one for Ventspils port workers for production indicators: for the first time cargo processing for us reached 35 million tons. It surpassed the record which had existed for almost 10 years for transshipment of dry-cargo goods; around a million tons of potassium chloride was processed. All of this required definite efforts by the enterprises of the transportation complex. Complex technical and commercial problems which arose in the process of performing cargo work were resolved at coordinating councils. The average downtime of railroad cars was reduced by four hours. The static load was 103 percent of the planned load.

We devote particular attention to processing railroad cars. And here a great deal depends on the transportation complex workers--the operating efficiency of through shift dispatchers, the professional skill of the dock worker-machine operators and switching brigades; and on the labor and production discipline of each and every participant in the technological process.

A great deal, but not everything. For example, it is very difficult for us to significantly influence reducing processing time for railroad cars that carry granulated potassium chloride.

As yet manufacturers are unable to ship the granulated product in the required amounts (80-100 carloads) to the ship access everyday. The problem of transshipping granulated potassium chloride has already been discussed at many conferences, but up to now no solution has been found.

The country's machine builders presented a nice gift to transport workers in 1982: now all potassium chloride arrives at the port in special mineral-carrying cars which made it possible to almost double the productivity of the dock worker-machine operators. However, increase in the labor productivity of unloading mineral-carrying cars is greatly restricted because of their technical condition (unsatisfactory operation of the system for opening and closing cargo hatches).

There is every reason to say that this is an "inherent" defect, programmed by the designers, and it gets worse during the period of operation. It is now perfectly clear that it is necessary to introduce changes in the design of the mineral-carrying cars, and the sooner, the better. However, the Stakhanov Plant is in no hurry to produce new cars. And since a minimum of 30 percent of the cars arriving at the port are defective, opening and closing of the unloading hatches is performed, to put it mildly, using unrecommended methods, which is both inefficient and hazardous.

In the past year much has been done to facilitate the labor of dock worker-machine operators and consequently to increase their labor productivity and to accelerate the processing of means of transportation. Our foreign trade organizations purchase goods formed in consolidated cargo units. This means sack cargo in sling containers and refrigerated cargo on single-use pallets. For example, when the diesel ship "Marafon Rifer" was unloaded, port and railroad workers handled up to 32 refrigerator cars a day, which put them within their processing norms. Unfortunately, suppliers do not fulfill contract terms so well very often.

Recently the delivery of such cargo in sling containers has gotten worse: hoists collapse, the number of units in them is not constant, and there are many damaged sacks. Railroad workers do not accept them for transport. It is necessary to examine the stacks piece by piece and then to load them into cars, also piece by piece, which reduces labor productivity by 3-4 times. Naturally, processing of means of transportation is slowed down proportionately. Obviously, the mechanism of financial sanctions on unscrupulous foreign partners is functioning slowly and not very effectively, if they do not stop such practices.

Solving the problems we have touched on would make it possible to accelerate processing of railroad cars by 25-30 percent for the transportation complex as a whole.

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## PORTS AND TRANSSHIPMENT CENTERS

### NORTHWEST RIVER STEAMSHIP COMPANY SEEKS BETTER INTERFACE WITH OTHER SECTORS

Moscow MORSKOY FLOT in Russian No 7, Jul 83 pp 8-9

[Article by I. Baranov, first deputy chief of the Northwest River Steamship Company: "The Collaboration of Water Transport Workers" under the heading: "Administration and Economics"]

[Text] The Northwest River Steamship Company is one of the largest in the Ministry of the River Fleet of the RSFSR. It is called upon to provide transportation service for many enterprises of the Leningrad, Vologda, Novgorod, and Pskov Oblasts and also the Baltic Republics.

Forty million tons - such is the steamship company's annual haulage in which the transport of national economy and export and import cargoes in interfacing river and maritime transportation occupy an important place.

The passenger fleet of the company annually carries about 12 million persons, among them tourists and business passengers in Leningrad and the Leningrad Oblast.

At the company's industrial enterprises, in addition to ship repair, a large shipbuilding program is being carried out. Motorships for mixed [river and sea] navigation having cargo-carrying capacities of 2,700 tons, 1,500 horsepower tugs and tow-boats, nonself-propelled ships, passenger motorships and oil tankers - this is an incomplete list of the production of the plants.

The steamship company is systematically expanding its transport of cargo and passengers by constant development of its material and technical base, by extending navigation on inland waterways, by increasing the volume of winter operations in the Baltic, Black, and Mediterranean Basins, and also by transferring to river ships a significant part of the cargoes of the railroads.

Some of the main directions for increasing the efficiency of the operations of the steamship company collective are improving the interactions with other kinds of transportation and also with the enterprises serving the industries of the national economy and further developing the initiative of the Leningrad transport workers which has been endorsed by the CPSU Central Committee.

Fulfilling the decisions of the 26th CPSU Congress and widely spreading socialist competition for a worthy celebration of the 60th anniversary of

the formation of the Soviet Union, the steamship company fulfilled the 1982 plan for haulage ahead of schedule on 5 December 1982. More than 350,000 tons of various cargoes above the plan were delivered. Much work was done on the realization of the Food Program of the USSR. The assignment to increase labor productivity in transshipment was fulfilled. Two million rubles of above-plan income was derived from all types of activity.

The company collective carries out its activity within the framework of the Leningrad transshipment center and structures its work on a basis of close collaboration with interfacing transportation systems.

The fruits of joint operations are found in a convincing way in the example of our work with the Baltic Maritime Steamship Company, the Oktyabr'skoy Railroad, and Glavlenavtotrans [Main Administration of Leningrad Motor Vehicle Transport].

While in 1980 the river fleet removed 260,000 tons of imports from the Leningrad maritime port, in 1982 it removed 600,000 tons, and, in 1983, it is projected to carry out 800,000 tons. This will permit releasing several thousand railroad cars so necessary for hauling national economy cargoes in other parts of the country.

The Northwest River Steamship Company is one of the first in the industry to put ships for mixed (river and sea) navigation into operation with the use of a new technology that eliminates the transshipment of cargoes in estuarial ports.

The Volga-Baltic Waterway imeni V. I. Lenin came into operation in 1964 to replace the antiquated Mariinsk system and permitted reducing, by a factor of 7, the time for the delivery of cargoes in the Leningrad to Cherepovets region.

Because of the construction of the canal and the use of mixed navigation ships, the real possibilities were created for transferring additional cargoes from the railroads onto water transport. Now, without transshipment, ore and apatite from the Kola deposits are being hauled for the metallurgical and chemical plants of Cherepovets, Pechorskiy coal and metal are being hauled for export to countries in Western Europe, lumber is being hauled from the Komi ASSR into Bulgaria, salt is being hauled from Aktyubinsk, and Vologoda lumber to the Baltic coast, and so on.

A special shipping line for transporting general cargoes from Western European countries to Iran has been organized and is operating.

The hauling of cargoes in mixed navigation produces significant savings for the national economy; namely, transshipment expenditures are eliminated, more costly seagoing ships are replaced in maritime areas by ships for river and sea navigation, deliveries are speeded up, and cargo security is increased.

Calculations show that in hauling 100,000 tons of coal from Cherepovets to the Baltic countries on ships of mixed navigation, the annual saving amounts to more than 500,000 rubles. These ships deliver more than 40 percent of all

cargoes hauled by the self-propelled ships of the steamship company. A significant portion of them are engaged in export and import haulage. Ships of the types "Sormovskiy", "Ladoga", "Baltiyskiy", and "Volga-Balt" give good accounts of themselves.

For increasing the effectiveness of operating mixed navigation ships, the most important potential is extending their period of operation by using them in winter in the unfrozen basins of the Baltic, Black, and Mediterranean Seas. The operating period for these ships amounts to more than 300 days which makes it possible to haul an additional 1.5 million tons of cargoes, to increase profits significantly, and to increase the productivity of labor by more than 5 percent.

The possibilities for developing year-around operation of mixed navigation ships are far from exhausted. In our opinion the planning of cargo haulage in winter with regard to the capabilities of river ships should be improved sharply. It is necessary to accomplish a more rational consolidation of maritime tonnage and mixed navigation ships along specific routes taking into account the technical capabilities of each kind of fleet.

In 1982 ships of the Northwest River Steamship Company called at more than 20 countries of Europe, Asia, and Africa and 150 foreign ports. The greatest number of ship callings was done in ports of Finland, FRG, Poland and Sweden.

The principal domestic maritime ports with which the Northwest River Steamship Company organizes the hauling of cargoes on mixed navigation ships are Leningrad, Vyborg, Kaliningrad, Tallin, Riga, Ventspils, Klaipeda, Baku, Belgorod-Dnestrovskiy, Skadovsk, Odessa, Nikolayev, Kherson, Novorossiysk, Kerch, Tuapse, and Feodosiya.

In our opinion it is necessary to divide all the work in the interaction of rivermen and seamen into two stages.

In the first stage is the annual and quarterly planning for hauling cargoes in mixed navigation (both for foreign and coastal voyages).

The second stage is organizing the operations of mixed navigation ships to fulfill the planned assignments.

The main organizing documents for the first stage are The Basic Regulations for Annual and Quarterly Planning of Cargo Haulage and The Agreement Between the MMF [Ministry of the Maritime Fleet] and the MRF [Ministry of the River Fleet] on the Use of Ships for Mixed Navigation.

At this stage, the agreement for the plans should be conducted both at the level of the appropriate administrations of the MMF and MRF and at the level of the steamship companies and the ports.

The projected amount of cargo haulage on mixed navigation ships is, right now, being agreed in advance with the Baltic Steamship Company and the ports of Leningrad and Vyborg. Without this the situation is impossible--the portion of river haulage from maritime ports is huge. For example, almost 70 percent of cargoes from Vyborg are carried away on river ships.

Despite the fact that a great number of mixed navigation ships are passing through the Leningrad transshipment center, practically, all the basic questions on the formulation of arrivals and departures of river ships are decided for us by the workers of the port supervision, the customhouse, the port captain's own service, and so on.

However, there are also unresolved problems.

In the first place, a substantial number of our ships return from foreign voyages in the summertime in ballast. In this connection there is a need for associations of MVT [Ministry of Foreign Trade] in concluding trade agreements to specify a transportation arrangement for cargo delivery using MRF ships which can go deep into regions of our country and foreign states.

In the second place, the Basic Regulations on Planning Haulage do not provide for river ship delivery of cargoes for foreign charterers. In winter there is a significant amount of such haulage. Therefore, back in the planning stage there is a need to decide questions about the distribution of haulage, especially in winter, in the Baltic and Black Sea basins taking account of the large capability of river ships to make voyages on short lines.

In the third place, bearing in mind that river ships in winter are working at significant distances from their bases and that this complicates their maintenance, there is a necessity to solve the problem of the repair of this fleet in both the Baltic and Black Seas.

In the fourth place, the need to build general purpose river ships for mixed navigation having cargo capacities from 4,000 to 5,000 tons and Roll-on/Roll-off ships and container ships cannot be put off.

In operational work (the second stage) the Northwest River Steamship Company supports business contacts with organizations of the MMF in many directions. Through the V/O [All Union Association] "Sovfrakht" the chartering of free tonnage for hauling the cargoes of foreign charterers is carried out.

Monthly commercial schedules for securing river vessels to handle import-export cargo are compiled. Depending on the actual cargo situation in maritime ports, an operational listing of unloading ports for river vessels is compiled.

All questions connected with the processing of river ships in maritime ports are decided in timely fashion. The total amount of loading and unloading work in MMF ports in 1982 amounted to more than 3.5 million tons.

Through appropriate representation abroad by the MMF, we are solving all problems in the processing and servicing of river ships in foreign ports and protecting the interests of the steamship company. In case of the non-delivery of import cargoes on river ships, we, together with the MMF ports, decide questions on the inquiry for missing cargo.

Rescue and salvage operations to render assistance are carried out jointly with maritime seamen and by MRF ships, departmental ships, and by foreign ships.

The steamship company takes an active part in the work of the Permanent River Commission of the Association of Soviet Ship Owners to work out a unified policy for steamship companies having mixed navigation ships.

The servicing of river ships in maritime ports is accomplished on the basis of agreements with the "Transflot" services of the maritime steamship companies.

Although maritime ports render a large amount of service to rivermen, it should be noted that their supplying of fuel and various materials is not carried out in full measure and it is done with large delays.

To improve the servicing of river ships and to reduce unproductive layovers, in our opinion it is necessary to conclude a general agreement between the MMF and the MRF in which the fulfillment of a specific set of services and of mutual material responsibilities are provided for.

In Leningrad and several other transshipment centers as result of the intense movement of mixed navigation ships, a need has arisen to increase the staff of a number of categories of workers in order to accelerate the scheduling of arrivals and departures of MRF ships.

While strengthening mutual understanding, it is our common task to achieve the greatest efficiency with the least cost.

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## EXPERIMENTAL SYSTEMS

### LINEAR ELECTRIC DRIVE UNDERGOING DEVELOPMENT IN KIEV

Baku VYSHKA in Russian 18 May 83 p 4

[Article by S. Andriyevskiy, NOVOSTI Press Agency: "Noiseless Trains"]

[Text] An experimental testing ground for the linear electric motor design bureau has been constructed in Kiev on the banks of the Dnieper Reservoir. Its rather narrow but massive 1,600 meter long concrete track is raised above the ground.

Anatoliy Kamrat, the director of the design bureau, stated that: "The idea of the new type of urban transportation is simple. We have created an original car on whose bottom steel runners have been attached. They glide noiselessly on small rubber wheels which are located on fixed axles on both sides of the track. A consist of these cars reminds one of a conveyer belt.

"The car, which has room for up to 300 passengers, drives itself with the help of a linear electric motor."

"What kind of a motor is that?" I inquired.

Anatoliy Kamrat pointed to an aluminum strip which extended along the middle of the concrete track and explained:

"This is one of the parts of our linear electric motor. It is stationary. The second part, the mobile part, is located under the car. Thus, both the road itself and the car moving along it together form an electrical motor. Its output is 400 kilowatts. This is sufficient to move a car with 300 passengers at a speed of up to 90 kilometers per hour."

Anatoliy Kamrat continued: "Generally speaking, linear motors can insure a speed of up to 500 kilometers per hour for transportation. However, the trestle conveyer road, whose model is being created on the testing ground and which is now being designed for Kiev, will have stops about every one and a half kilometers. You would not develop great speed on such short sections."

I had an opportunity to observe the movement of the wheel-less car on the trestle. The complete silence was surprising: there was no knocking or other

noises which accompany the movement of a street car, bus and subway car. An excellent quality for urban transportation!

Road tests of the new type of transportation will soon begin over the entire length of the trestle which has been erected on the testing ground.

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## EXPERIMENTAL SYSTEMS

### SCIENTIST URGES DIRIGIBLE USE IN REMOTE AREAS

Moscow EKONOMICHESKAYA GAZETA in Russian No 23, Jun 83 p 10

[Article by D. Bogorad, doctor of economic sciences and senior scientific associate in the RSFSR Gosplan Central Economics Scientific Research Institute: "Transportation Capabilities in Developing the North"]

[Text] The development of the production forces of the European North, Siberia and the Far East are an important task in the growth of the country's economic potential. There are quite a few difficulties on this path, especially in the supplying of the developed territories with transportation and labor resources.

Due to the excessive cost -- 5-10 fold higher than the costs in the middle band of the European section of the country -- construction of railroads and hard-surface highways to mineral resource sites that have been proposed for development, and which are remote from main transportation routes is unrealistic. One must also take into account the development periods for the new deposits, which in the best of cases are estimated at several decades; after this, the constructed communication routes will no longer be necessary. Waterways, plank roads and reliance on helicopters as the main type of transportation into the remote territories do not solve the task because of their insignificant freight-carrying capacity, high transportation costs and dependence on weather conditions.

It seems more advisable to bring about transportation ties between the places for mining and processing minerals by using dirigibles which are still not being used at all.

An interest in them is being displayed by the workers of many branches. They will have especially large importance for regions of new development. The use of dirigibles has been included in the "Sibir" program. When compared with other types of aerial equipment, their advantages consist of greater freight-carrying capacities and minimal expenditures of fuel. There is no need to construct airports and landing strips. Dirigibles, equipped with nuclear engines, are capable of spending several months in the air regardless

of weather conditions, moving from an unfavorable meteorological zone and heaving to until the bad weather is over. They can be used for transporting and assembling heavy designs and delivering minerals, timber and other freight, insuring large economic efficiency.

A decree on the construction of two test models of transport and assembly balloons with high freight-carrying capacities has been adopted jointly by the USSR Gosplan and the USSR State Committee for Science and Technology. The solution of this task has been placed on the USSR Ministry of Power and Electrification. The work is being performed in a number of the country's cities; the coordinating center is the "Energoaerostat" department of the "Orgenergostroy" Institute.

The use of dirigibles in the northern zone will be an important factor in solving not only transportation and economic but also social problems and in insuring expanding production by labor resources. The opportunity to use the watch expedition work method on a large scale and to construct comfortable portable watch settlements will appear.

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END